AMERICAN

Journal of Mining.

Engineering, Geology, Mineralogy, Metallurgy, Chemistry, etc.

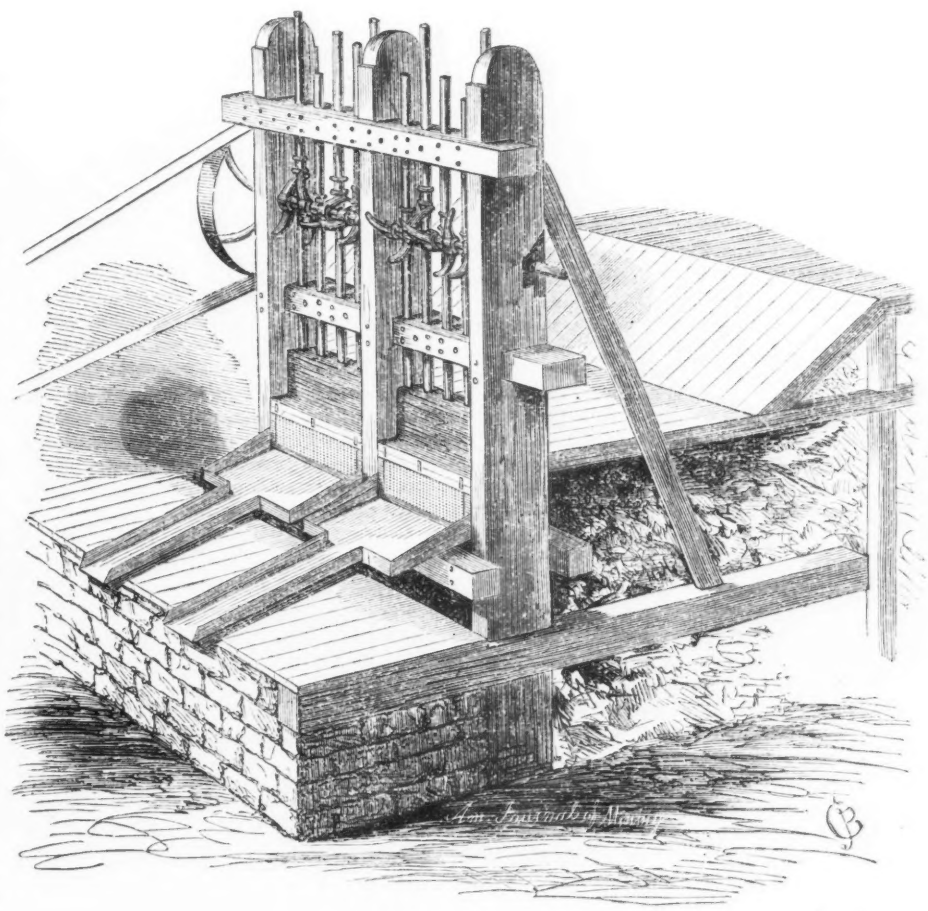
VOLUME IV.—Number 16.
New Series.

NEW YORK, OCTOBER 19, 1867.

$4 A Year in Advance.
Single Copies Ten Cents.

TEN-STAMP BATTERY.

The accompanying illustration represents a ten-stamp California Battery, for crushing auriferous quartz, with provision for battery amalgamation, with inside and outside copper plates, as built by Messrs. Mory & Sperry, 95 Liberty street, New York. These gentlemen are agents for the celebrated Miner's Foundry of San Francisco, and build their stamp-mills and other mining machinery after the well-known and thoroughly-tested California patterns. They are also agents for the Hepburn & Peterson pan, and the Hendy concentrator—two most useful inventions, which also come from the Pacific coast, where they have already stood the trial of experience. The battery here represented has ten revolving stamps, with iron stems and circular heads. The shoes and dies are of charcoal and Franklinite iron, mixed in certain proportions which secure a maximum hardness and toughness. Each mortar is cast solid in one piece, so that there can be no leakage or loosening by the jarring of the stamps. A battery of this kind, with 650 lb. stamps, and mortars weighing 3,500 lbs. each, requires about one horse power per stamp, and will crush and amalgamate per stamp at least 1½ tons daily of hard quartz. When the material is soft, and the battery is provided with a double front and back discharge, this amount may be doubled or even trebled. The usual mode of treating ores containing free gold, and but little sulphurets, is to run the ore through the stamp-mill, amalgamating as much as possible in battery and on copper plates. From 60 to 80 per cent. of the gold may be saved in this way. The tailings are then concentrated with blankets or in the Hendy concentrator, and amalgamated in an *arastra* or pan. This is the method resulting from years of experience on the Pacific coast; and parties who are about engaging in gold mining would do better to profit by the wisdom which has been so dearly bought in the west, than insist on treading the same path of fanciful speculation and "new invention" for themselves. Somebody must try the new machines, but it should not be the proprietors of new mines. Meanwhile, whoever would keep clear of humbug, and use the means by which quartz mining in California has become a legitimate and regular business, should patronize men like Messrs. Mory & Sperry.



MESSRS. MORY & SPERRY'S TEN STAMP BATTERY.

A correspondent of the New York *Tribune* writing from Union City, Montana Territory, under date of Sept. 10th, 1867, says: "Hitherto there has been no such thing as economical delivery of ores from the mines of Montana, and mills have been of an indifferent quality. They have been erected and started as if they were to be run but a season or two at most, and the proper development of mines was not warranted. * * * Some mills are failures because the machinery is imperfect and will not crush the ores or save the gold successfully. Indifferent machinery may be used for many purposes in the States, where the business to which it is applied is well understood, and repairs cheap and easily procured; but *an imperfect quartz mill in Montana is not worth erecting.* I noticed one quartz mill, owned in Pennsylvania, that has a good building, plenty of ore about it, a large lot of wood ranked up about it (worth $7 a cord in gold,) and the machinery gave out hopelessly in working less than five tons." The same remarks might be appropriately applied to all new mining countries. Thousands of tons of imperfect and useless machinery may be seen scattered all over Colorado Territory, and millions of dollars have been wasted in fruitless experiments there. Perhaps it would be safe to say that one hundred millions of dollars have been spent in California in a similar manner.

How to go to Montana.

The emigrant to the gold fields of Montana has choice of several routes, the most feasible of which is up the Missouri River by steamer, in the spring of the year, (the month of April being the most favorable for starting,) from St. Louis to Fort Benton, at an average fare of $200 to $250 from Chicago, with 100 pounds of baggage. Fort Benton is about seventy-five miles from the gold fields, now discovered, and one hundred and thirty from Helena. Or, by railroad from Chicago, through Cedar Rapids, Omaha, and to the terminus of the railroad, now 300 miles west of the Missouri River; from thence by overland coach to Denver and Salt Lake to Virginia City, in Montana, about 1,400 miles by coach, at double the fare over the river route, with twenty-five pounds of baggage, and $1.50 per pound for extra baggage. Or, with your own outfit, you can go across the plains with an emigrant train from Omaha and other points on the river, to Virginia City, or from St. Paul to Helena, at but little expense save your own outfit for team, wagon and provisions for a three months' journey. On this route, we understand, a line of coaches is to be put on the coming season. Or, you can go by steamer from New York to San Francisco, and Portland, in Oregon, and across the country from Portland, by way of Walla Walla, (about 700 miles,) 350 by water, and the balance by land, to Helena, the centre of the gold and silver regions of Montana, from which radiate coaches and other means of communication to the various mining localities.

Carbonic Acid Gas as a Fire Extinguisher.

At a late meeting of the Commission of Life-saving inventions Prof. Doremus spoke briefly on the advantages to be gained by the use of carbonic acid gas in a liquid state as a fire extinguisher. He said that it was now universally known that oxygen was the great supporter of combustion, and that all other gases were its enemies in a greater or less degree. Carbonic acid was perhaps its greatest enemy, as it lessened its value as a sustainer of combustion. Carbonic acid gas in a liquid state, owing to recent improvements in its manufacture, was cheap and portable, with safety; and he would recommend that vessels be supplied, and be placed on board ships and ferry-boats, or elsewhere where many lives were in danger. A supply of this gas, available through lengths of hose reaching from end to end of a ship, could not fail to be of immense service in extinguishing fires in their inception. He would not say that it would always prove successful, for in cases where windows and doors, or hatchways or other sources of supply were thrown open, and fresh oxygen admitted *ad libitum*, the gas might effect its purpose. He, however, believed that misfortune might often be avoided and human life saved by a proper attention to such an apparatus as that he suggested.—*Journal of Applied Chemistry.*

Aluminium Bronze.

This alloy, in which aluminium takes the place of the tin contained in common bronze, is becoming daily more and more important in the metal trades. In a paper recently presented to the Academy of Sciences, M. Hulot, director of the postage-stamp manufactory at the Imperial Mint, describes a new application of this alloy, clearly showing its power of resistance superior even to that of steel. It may not be generally known that paper is one of those substances that blunt the edge of a knife-blade or a pointed instrument most easily. The sharpest blade becomes unfit for use after it has cut through a few hundred sheets of paper. But when the latter is gummed its power of destruction is infinitely increased, and this is the case with postage-stamps. The holes pierced through these little squares of gum paper are obtained at the French mints by means of a machine consisting of an upper frame armed with 300 needle-points of tempered steel, fixed upon it in an erect position at right angles with the plane of the frame, which in its turn is hinged to another frame made of tin bronze, and pierced with as many holes as there are needles, each fitting exactly, though not tightly in its proper hole. At every stroke this machine perforates five sheets of postage-stamps. The wear occasioned by this work is such that in the course of a day the perforated frame of common bronze becomes unfit for use, the holes widening so that the paper, instead of being pierced, is merely embossed. This may easily be conceived from the fact that each machine strikes 120,000 times in the course of the day, which answers to 180 millions of holes! M. Hulot, after many trials, resolved to substitute aluminium bronze for the common alloy of copper and tin; and experience has now shown that the lower frame made with the former will last several months without being worn out.—*Galignani.*

Gold Coinage.

We give the following statement to show the enormous increase in the gold coinage of different countries in the decade 1850–1860, following the double discoveries in California and Australia: From 1792 to the close of 1860, the total gold coinage of the United States amounted to $610,000,000; of this total the large proportion of $525,000,000 was coined in 1850–1860. France coined in the period extending from 1726 to 1860, 7,700,000,000 francs, of which 4,200,000,000 francs were coined after 1850. Russia coined from 1850 to 1860, 220,000,000 roubles, out of a total coinage since 1664 of 486,000,000 roubles. Great Britain shows a coinage in ten years from 1850 of £54,000,000, out of £250,000,000 coined since 1603.

Copper.

INTERESTING FACTS CONCERNING THE SMELTING WORKS, NEAR SWANSEA, IN WALES.

The town is 214 miles southwest from London, upon the western bank of the river Tawe, near Swansea bay. It has a population of 49,000 souls, and is the most important town in South Wales, having risen from a comparatively insignificant place to one of the most important commercial and manufacturing towns in the principality, being of course indebted for its prosperity to the position it has taken in the smelting of ores. Its maritime situation, and its vicinity to mines in its own neighborhood and those of Cornwall, have been of great assistance, but an immense advantage has been given by the cheapness of coal, upon which economy in smelting ores depends more directly than upon the price of labor. The coal used by the smelters is almost wholly brought to Swansea by canal, and can be easily laid down there from the adjacent mines at five shillings, or $1 20 per ton. Of course an immense quantity is annually consumed, and long before you reach the town you are apprised of your proximity by the heavy clouds of smoke which girt the horizon. At times the fumes from the chimneys are very unpleasant, and the face of the surrounding country is quite barren of verdure. Still it is affirmed that the place is healthy, and that habitual residents are not affected by the vitiating fumes of copper, sulphur, arsenic, &c. In addition to the smelting works, there are large works for manufacturing ironware, tinware, zinc, alkali, patent fuel, earthenware, pottery, besides yards for building ships of iron as well as of wood. The patent fuel, of which a large quantity is made here for steam vessels and railroad engines, is composed of small coal, called culm, which is powerfully compressed with tar into the form of bricks. Large sums have been expended upon the harbor, which is well protected by extensive piers and embankments, and is capable of holding in safety hundreds of vessels. Nine-tenths of the copper ore smelted in England is done here, and the processes, simple as they are, are supposed to be in advance of those at Freiburg, or at any other place in the world. Two weekly newspapers are published in the town, and despite the noxious affluvia of the neighborhood, it is much resorted to for sea bathing; and "Mumbles," four miles distant south from the shore, is a resort for annual sailing matches and sports. Mumbles' Point is a bold, rocky promontory reaching out into Bristol Channel, and possesses one of the finest lighthouses I ever saw. In its vicinity are extensive oyster beds, which give employment to a large number of men. Strange to say, however, fish seem to be very scarce. Whether they dislike the vicinity of Swansea or not, I cannot tell, and although the town boasts of a fine fish market, I have not been able to catch sight of a fin since I have been here. It is quite evident that Swansea is not in a decaying state, and that it is destined to still further increase in importance; but it is now depending more upon foreign copper ores than upon those in its vicinity. A great complaint is made about the present condition of the Cromwell mines, which are not producing as rich ores as of yore, and are so deeply worked that they have become expensive. I have noticed large quantities of ore here from Chili, which is quite rich. Also from Norway, Spain, Cuba and California. The principal smelters here are Vivian & Sons, Charles Lambert, Williams, Foster & Co., Grentell & Sons, and Dillwyn & Co. These houses all have extensive works. Vivian & Sons have also large works for manufacturing spelter and alkali. The latter house has also an improved process for extracting silver, which they keep strictly guarded from observation, but courteously exhibit their other departments. Charles Lambert, the wealthiest individual probably in Swansea, though his works are less extensive than those of Vivian & Sons, has a similar process, however, for extracting silver, which has been in operation some six months. To this access is not so difficult. I have found the ores of Colorado well known here, and in high reputation. I have found at the different offices specimens taken from the lot sent out here after Mr. Heerman's return, and I have been invariably informed that no sort of difficulty would be experienced in working them here. In fact they can be worked here as successfully as any of the ores they receive, and have the whole of the gold, silver, and copper saved. The expense of reducing them here would be comparatively small. I am surprised to see at how small an expense an ordinary furnace with calcining chambers could be erected here of capacity to run down three tons of Colorado ore per day into regulus. From the estimates given me by the superintendent of one of the smelting houses, a furnace of the above capacity could be erected here for £150. The advice universally given here is, erect furnaces of this description, and run down the ore into regulus of fifty per cent. copper, and which will carry all the gold and silver, and send the regulus to Swansea for sale and separation. Ores are shipped here in bulk which are without gold or silver, and carry less than five per cent. of copper, which are all worked to profit. I never had a firmer conviction of the positive value of Colorado ores than I have now, after seeing the smelting works at Swansea, and the cheap and perfect processes here for working ores similar to ours in every way but value, in which respect they cannot be compared. Our ores will not much longer lay neglected upon the hill-sides, or our tailings be allowed to sweep down streams as they have. Colorado is a certainty, and the value of her ores a fixed fact, and the one who doubts it is simply wanting in information. I would add that the presence of galena in ores for smelting, is not considered at all necessary by the process here. The ore after being crushed, if abounding in excess of sulphur, is submitted to twenty-four hours' calcination, which is nothing more than an application of heat to bring the ore to a dull red-color, with a moderate supply of oxygen. The ore is then raked into the furnace and melted down, the slag raked off, and the metal run into blocks of regulus for separation. The judgment and skill required is in the application of heat and admixtures of ores to facilitate the working, and is wholly a matter of experience."

The Walled Lake of Iowa.

The greatest wonder in the State of Iowa and perhapa any other State is what is called the "Walled Lake," in Weight county, twelve miles north of the Dubuque and Pacific railway, and about one hundred and fifty miles west of Dubuque city. The lake is from two to three feet higher than the earth's surface. In some places the wall is ten feet high; width at bottom fifteen feet, and at the top five. Another fact is the size of the stones used in construction; the whole of them varying in weight from three tons down to one hundred pounds. There is an abundance of stones in Weight county; but surrounding the lake to the extent of five or ten miles there are none. No one can form an idea as to the means employed to bring them to the spot, or who constructed it. Around the entire lake is a belt of woodland, half a mile in width, composed of oak; with this exception the country is a rolling prairie. The trees must have been planted there at the time of the building of the wall. In the spring of 1856 there was a great storm, and the ice on the lake broke the wall in several places, and the farmers in the vicinity were obliged to repair the damages to prevent inundation. The lake occupies a ground surface of two thousand eight hundred acres; depth of water as great as twenty-five feet. The water is clear and cold; soil sandy and loamy. It is singular that no one has been able to ascertain where the water comes from, nor where it goes, yet it is always clear and fresh.

Original Papers.

THE COAL DEPOSITS OF BOULDER COUNTY, COLORADO.

WRITTEN FOR THE AMERICAN JOURNAL OF MINING,

BY A. WALTERS, MINING ENGINEER AND METALLURGIST, CENTRAL CITY, COL.

Among the coal deposits hitherto discovered in Colorado, those of Boulder county are the best known, and, by virtue of their favorable locality, the most important for the central mining district.

Very probably the coal will be found in considerable extent, stretching from North to South along the eastern declivity of the Rocky Mountains; only at two points, however, are the beds well opened:—at Coal Creek and Belle Monte. In both these places several seams are exposed, which all present the same quality of coal, underlie the same, or at least exactly similar strata, and justify, therefore, the supposition that they are synchronous in age, and formerly constituted a great basin, the continuity of which has been broken by later eruptions and upheavals. At Belle Monte some eleven different seams have been thus far exposed, of which, however, only a few have been opened by means of tunnels, driven on the foot wall. The thickness of the different seams varies from three to twenty-two feet. The most thoroughly worked bed, in which there is a tunnel of 150 feet, lies nearly horizontal, is two feet thick at the outcrop, and increases to twelve at the end of the tunnel, where it, nevertheless, does not appear to have attained its maximum thickness. This seam lies between strata of fire-clay, the thickness of which is not yet known, but, judging from the analogous phenomena at Coal Creek, may be from three to five feet. This clay is overlain by fine sand, and on the contact planes, the prints of leaves occasionally appear.

A favorable locality for geognostic explorations is afforded by the seams at Coal Creek, three miles South of Belle Monte. At a place called Profile Butte, the creek has broken through a chain of hills parallel with the Rocky Mountains. On the right bank rises a deep sandstone bluff, in which the coal-seams are imbedded. Three of them are completely shown by the natural section; and four others have been discovered by a little prospecting. The stratigraphical conditions are the same as at Belle Monte, except that the beds are not horizontal, but dip 43 deg. East. This variation of dip, however, is most probably only local; and we may assume with tolerable certainty, that the Coal Creek beds, when followed further, will be found to become horizontal.

The two lowest seams have been opened with two tunnels, the first of which is ten, and the other forty feet above the surface of the stream. They were driven in about a hundred feet, and a large quantity of coal was extracted, in which work it became evident, that the two seams approach one another, so that a complete union is hardly a matter of doubt. The third seam is overlain by fire-clay, containing nests of iron ore, from the size of a walnut to pieces of a hundred weight.

Concerning the age of this coal, nothing can be with certainty said at present, since no trace of fossil remains has yet been discovered in the accompanying strata. Judging from analogy, the formation should be ascribed to the cretaceous period, and the coal should be classed, consequently, rather with lignite than bituminous coal. The coal itself is of lustrous black color, has a black powder, but rubs off little or no smut. It burns with long, yellow flame, gives little soot and about twenty to twenty-five per cent. of ash, white to yellowish red in color. This large proportion of ash, which is indeed not particularly desirable in smelting, will be likely to diminish as the beds are opened to greater depth.

The value of these coal deposits is especially enhanced by the occurrence of iron ore and fire-clay. The latter forms, as has been said, both roof and floor of the seams, and has a thickness of three to five feet. It is bluish gray, burns almost white, and may fairly be compared with the well known standard clays of England and Germany. I have used it with the best success in the manufacture of muffles, crucibles, scorifiers, etc., for assaying; one of the severest tests to which it could be exposed.

The iron ore occurs scattered over the surface all the way from South Boulder to Coal Creek. At a depth not exceeding five feet, masses of a thousand pounds have been found in the sand. No defined bed has yet been discovered; but the great quantity of the superficial boulders gives ground for hope that such a deposit exists. The blast furnace already erected in the neighborhood, may be supplied for years from the surface alone. The ore is probably a weathered spherosiderite, and now appears as limonite, containing fifty to seventy per cent. of iron, together with manganese, alumina and silica. It needs only a little lime as slag material, to yield an excellent pig iron. Unfortunately the price of coal, under the present high cost of labor and material, is still excessive. Whenever the completion of railway connection with the East shall have reduced these items of expenses, together with the general rates of living, there will remain no obstacle to the exploitation of these valuable deposits for metallurgical and manufacturing, as well as domestic purposes.

☞ In a paper read before the Scientific Association of Trinidad, the Hon. Henry Mitchell states that in consequence of the new and simple methods for preventing taint. Fresh meat will, ere long, be sold everywhere, at 2½c. a pound; and he bases his calculation on the fact that there are in the provinces of La Plata, 27,000,000 cattle, and 40,000,000 sheep, and in Australia 180,000,000 cattle, and 300,000,000 sheep.

Mining Summary.

GOLD AND SILVER.

Nevada.

The Comstock.—The San Francisco *Mercantile Journal*, Sept. 17th, says: In mining stocks there has been a continued and heavy depression throughout the entire list. Various causes have combined to aid the Bear party in reducing prices, notwithstanding the abundance of money. The mines themselves, as a whole, do not respond to the heavy fall in the prices of their shares. The fall has been so heavy and indiscriminately that there is no disposition to stay it, but, on the other hand, to depress it to the utmost, in order to pick up stocks cheap. Savage has undergone the most marked decline, dropping from $3,989 to $2,700 per foot—a fall of $1 289 per foot. The immediate cause was a threatened cave in the drifts, which involved the utmost caution in working the eighth, ninth and tenth floors. This hindered the raising of second-class ore, and the week's work was: Mined, 1,808 tons; milled, 2,002 tons; approximate value, $68,272; cost, $35,150; approximate profit, $33,128, or $37 76 per ton average. The approximate returns for four successive weeks are as follows:

	Mined, Tons.	Value.	Per Ton.
August 17th	2,219	$94,996	$43 00
" 24th	1,972	88,091	44 60
" 31st	2,075	81,382	38 84
Sept. 7th	1,808	68,272	37 76
Total four weeks	8,085	$332,741	$41 15

These are the approximate values, and the decline is ascribed to the difficulty caused by the danger of caving, which prevents the extraction of second-class ore to raise the average of the third-class ore. The actual quantity reduced for the month of August was 9,147 tons, giving a product of $327,937 of bullion, or $41 31 per foot. Hale & Norcross stock has sold to the extent of twenty-one shares since the 3d instant. The sales are said to be for the account of a large owner to raise money. The price closed at $1,400 per foot. The mine itself looks as well as ever. The shaft is down 44 feet below the 780 foot level, and a further sinking of 70 to 80 feet will be followed by a drift for a new level. The new hoisting works are making rapid progress, and are capable of working to 1,400 feet deep. The expenses of the company will be greatly reduced after this month. The usual dividend of $1 25 per month was paid on the 16th. This stock has been used to demoralize the market, and thereby affect other stocks. Crown Point stock, since our last, has fallen from $945 to $650 at the close. The disposition to sell has been considerable. The statement for the past month was:

Cash, August 1st	$10 000
Receipts, August	55,000
Total	$95,000
Expenses	85,000
Balance on hand	$10,000

The value of supplies on hand is $30,000. The bullion yield for August was $54,291, from 2,081 tons—over $26 per ton. The shaft is now down 66 feet below the 600 foot level. Chollar Potosi, with the rest, has undergone a heavy decline of from $427 to $322. The appearance of the mine is generally favorable. The product of ore for the month of August was 11,428 tons, giving $350,000, or $28 57 per ton. The dividend of $25 per share was paid on the 14th. Yellow Jacket stock, under depressing rumors, fell from $470 to $400 per foot, closing $390. There is nothing definite as to the condition of the mine. Gould & Curry stock has varied from $307 to $325, closing at $320. The reserve of ore in the mine, which has been so long depended upon to pay expenses of exploration, still gives some 60 tons per day; but the general situation has been such as to compel the levy of an assessment of $100 per foot. Imperial has been comparatively steady, ranging from $135@$140, closing $137. The general appearance of the mine is reported as better, and the ore in the 371 level is far higher grade. It is expected that drifting from the shaft will commence ere long. Overman has fluctuated perhaps the least of any stock on the list, ranging from $60@$67, closing at the former rate. The condition of the mine shows very little change, but the progress of the drift towards the old works affords anticipations of improved yield. Sierra Nevada stock fell from $14 to $7. The disappointment in not finding ore led to sinking the shaft 200 feet further, and the consequent levy of an assessment of $10. The Kentuck stock fell steadily from $203 to $166 at the close. The dividend is reduced to $25.

Hot Creek District.—The Austin *Reveille*, October 1st, is informed by a gentleman just in town from this district that "the mill of the Old Dominion company had been working very successfully for several days before he left there. The buildings were not yet finished, and the machinery was exposed to the heavy rain which occurred last week, by which a temporary delay was produced. The first ore crushed in the battery was a lot of second-class from the Old Dominion mine, the pulp of which assayed $150 per ton. They were about to work some fifteen tons of the first-class ore, the estimated yield of which was very high. Great masses were obtained from the mine, which exhibited an unusual amount of horn silver, the characteristic surface ore in the district. The developments on the Old Dominion ledge were of the most extraordinary character, and bid fair at this early stage to furnish the mill of the company with a full supply of ore. At the trifling depth of twenty feet in the incline there is a vein of pay ore twelve feet thick, the whole mass of which may be carried to the mill with substantial profit."

Palmetto District.—The *Reveille* says: From Mr. B. B. Stansberry, who returned to the city from Palmetto district on Saturday evening, we learn that Col. Catherwood was so highly pleased with the Silver Champion mine that he bought and shipped a mill from Aurora, which is to be erected immediately at Palmetto. The Silver Champion has been opened to the depth of sixty-five feet, and has produced a considerable amount of good-looking ore, a specimen of which was shown to us. Mr. Stansberry showed us also two specimens from the Lodi and the Nevada ledges, owned by him, which assay high. The ore contains a large proportion of gold. On his return, Mr. Stansberry passed through the adjoining district of Silver Peak, where active preparations were under way by the Silver Peak and Gold Mountain Gold and Silver Mining company.

Morey District.—We learn that a large lot of ore which was taken to Hot creek from the Morey district, for reduction in the mill of the Old Dominion company, has given a yield of upwards of $200 per ton by assay of pulp. The owner of the mines in the Morey district has contracted with the mill for the delivery of one hundred tons of ore.—*Ib.*

Monthly Bullion Shipment from Austin.—There was shipped from this city during the month of September, by Wells, Fargo & Co., 160 bars of bullion, weighing 10,752 pounds, and valued at $164,012 03.

Pahranagat District.—We are informed by P. Felsenthal, a merchant at Hiko, in the district of Pahranagat, whence he arrived in this city two days ago, that a fine ledge of six feet in width had been cut in the tunnel of the Indiana mine. The ledge vein is said to contain much excellent ore. The Indiana belongs

to a New York company, of which James Ostrom is the agent. Matters generally were quiet in the district. According to Mr. Felsenthal, there has been more sickness this year than usual, fever and ague and other degrees of billious fever being quite prevalent. He arrived here, by way of Belmont, in a stage..... The Silver Bend *Reporter* takes the following from a letter dated Sept. 20th: Everything here is just about as usual, except that for the last three or four days it has been very cold. We have already had ice frozen to a considerable thickness in the mountains, and severe frosts in the valley. Mr. Iselin, who has been operating here since last June in our mines, has gone East for the purpose of arranging some little matters of difference between his own and other companies in New York. He has suspended all work on the mines under his charge here until his return. James Ostram is still pushing work ahead upon his new mill, which, when completed, will, for its capacity, be equal to any upon the Pacific coast. He has just opened a large body of good ore in the Indiana ledge, and every one here is in ecstacies over his success.

Silver Peak District.—The Austin *Reveille*, September 25th, says: Charles W. Harker left the city to day, with some twenty experienced miners, for the Silver Peak district. Another party of fifteen miners from the Mammoth district will join him at Indian Springs. The men are taken to work on the mines of the Silver Peak and Red Mountain in Gold and Silver Mining Company, which is about to begin operations on an extensive scale.

Montana.

A. K. M., the *Tribune's* special correspondent, writes from Union City, under date Sept. 10, as follows:

Every day seems to develop new sources of wealth in Montana. There are now hundreds of undoubted good leads of gold and silver in the territory, whose yield has been well tested, which are waiting for wisely directed capital to make them produce most satisfactory results. I have explained, in a former letter, how many of the best leads are owned in small claims and fractions of claims, so as to effectually preclude successful development. But it is now understood by owners here that the time is past when Eastern capitalists will risk their money in fractions of leads, scattered so that none of them can be worked profitably. I notice that in the recent discoveries, some of which are of marvellous richness, care is taken in most instances to have a sufficient amount owned or controlled by one man, or one interest, to justify thorough developments; and this important fact will give the new leads a decided advantage over many of the older ones when companies seek for mines. Hitherto there has been no such thing as economical delivery of ores from the mines in Montana, and mills, as a rule, have been of an indifferent quality. They have been erected and started as if they were to be run but a season or two at most, and the proper development of mines was not warranted. This year some of the very best mills are arriving, both from the East and California, and in many instances the mines are being handled in the most methodical manner. Although the location of most rich leads in this mountain region gives the very best opportunities for delivering ores by tunnels, at half the cost of shafting, I do not know of any company that has attempted to tunnel until this season, and I doubt whether any mill in the territory is as yet supplied in that manner. In very many instances, companies own but fractions of leads, and cannot tunnel without doing as much for the benefit of others as themselves. They are therefore compelled to sink shafts to work 100 or 200 feet, and thus the cost of mining the ore is enormous, with wages from $5 to $8 per day. I am glad to observe, however, that most of the developments started this season have been by tunnels, and generally a degree of system and far-reaching direction is taking the place of the efforts to produce gold by mere temporary and most imperfect working of leads. No company or association should undertake the mining and reduction of Montana ores without being fully assured that they are prepared to do the best work at the minimum cost. Science and skill must, as far as it is possible, economise labor, or profits will be speedily wasted. Some companies have failed in this region because they had no earthly chance to succeed, and some have succeeded in spite of the imbecility of their direction. Mills have been erected here, as in Colorado, without testing leads; and when the leads intended to supply the mills failed, the almost boundless wealth around them has saved them from disastrous failure. No good quartz mill should fail in Montana, even if the owners have been utterly defrauded on their mines. I believe that there is not a mill in any part of the territory where custom work (crushing for other parties) could not be had at a fair price to employ it, and it must be so for several years to come. Some mills are failures because the machinery is imperfect, and will not crush the ores or save the gold successfully. Indifferent machinery may be used for many purposes in the States, where the business to which it is applied is well understood, and repairs cheap and easily procured; but an imperfect quartz mill in Montana is not worth erecting. I noticed one mill, owned in Pennsylvania, that has a good building, plenty of ore about it, a large lot of wood ranked up (worth $7 per cord in gold), and the machinery gave out hopelessly in working less than five tons of ore. Of the mills now in course of erection in Montana, I believe that nine out of ten will be positively successful. The machinery is generally of the most improved order, and as a rule they are under the supervision of experienced and practical men. The sad fate of so many mining companies in Colorado, most of which were the offspring of feverish speculation, has been of most essential service to this territory, and I look for but few failures of the mills hereafter erected, or now being erected. The mines are so numerous and so generally rich, that good machinery and good management can scarcely fail. I have paid much attention to the mineral wealth of Montana during the month I have been here, and I must to day repeat, with increased confidence, the invitation, made in a recent letter, for $20,000,000 of capital to develop the vast wealth of these mountains. True, there must be occasional disappointments by unexpected and unaccountable failure of leads which promised well, and now and then a culmination of misfortune that human foresight and energy cannot control, but the proper outlay under judicious direction, cannot, as a rule, fail to return immense profits to the owners of mines and mills in this section. The mines have not been as fully tested as in California, but all scientific and practical experience must be at fault, if the Montana mines do not increase in richness as they are developed. In no other country in the world are the leads better defined or less capricious than here, and thus far there has been no trouble in the complete mastery of the ores by ordinary machinery. Some of the richest ores contain sulphurets, but so far the Montana miner welcomes them as evidence of increased richness, instead of accepting them as an impediment to reduction, as in Colorado. But whatever may be the character of the ores here, when the leads have been tested to the depth attained in California, there is enough, and more than enough, of easily mastered ores in this territory to serve the purposes of the present generation. Those who are not especially interested in the mining operations of posterity, need not borrow any trouble about the abundance and simplicity of the gold ores of Montana. The reduction of the rich silver ores here has been attended with some difficulty in certain localities, and has been most easy and successful in others. Quite a number of silver leads contain the necessary amount of galena to smelt them economically, and the litharge is worth from $250 to $300 per tun, or 12 to 15 cents per pound. The litharge from silver ores, adapted to smelting, contains about 75 to 85 per cent. of pure lead. In the entire absence of galena in the silver ores, they are crushed and amalgamated successfully by the same process employed for the reduction of gold ores. Let me here throw out a timely caution to all Eastern capitalists who have invested, or may contemplate investing in distant mining companies. It is perilous to place money at the disposal of corporations, without being fully assured of the integrity of the controlling parties. The "freeze out" game is a common and luxuriant growth in successful mining sections. I have seen several establishments arbitrarily closed, by a few in immediate control, to depress the shares, and force other owners to sell at a sacrifice. I could now chalk the hats of managers in Montana who, after using the capital of all the shareholders to prove the value of their mills and mines, have closed their mills on various pretexts, and mean that there shall be no profits realized until the flattened out stock can be gathered into the hands of the few who govern the inner circle of the direction. In mining regions, I regret to say, this is but too generally considered a legitimate business transaction, and Eastern men of fair standing are often seized with the infection when they are sent out as the guardians of the interests of stockholders. There are perils enough in all enterprises so distant from capitalists, without the danger of being cheated out of the fruits of the investment, after the risk has been incurred and success assured. Any good mill in Montana that does not pay, wants a change of management. Money may be wasted in pursuing wild-cat mines, such as are hawked about in the Eastern cities by speculators, but no mill-owners here should follow dubious leads to disaster, when there is an abundance of good ore offering to mill-men. I am quite sure that $500,000, judiciously devoted to the opening of mines in Montana this season, would justify the erection of 1,000 first class mills next season. There have been more valuable leads discovered in the Territory, so far, this year, than in any previous season, and the gulches clearly demonstrate that very many are yet undiscovered, while there are doubtless thousands of leads, of various richness, in the mountains, which have never given washings to the gulches. These will be found as others are developed. Few persons in the East have any just conceptions of the manner in which gold leads are discovered. They hear only of the discovery of valuable mines, but no one records the innumerable failures. For every one who is successful, fifty or more are unsuccessful. The placer "prospector" is the pioneer in the development of the precious metals. If low in purse, he traverses the mountains on foot; but if able to own an animal, he has a "broncho" (native or California pony,) mule or jack, on which he carries his "outfit," consisting of "grub," pan, spade, pick, blanket and revolver; and he will thus travel hundreds of miles in search of "new diggings." He observes the mountain cliffs which give any indication of gold. In the neighborhood of most, or perhaps all leads, may be found "croppings" of quartz, which are readily recognized by the experienced prospector. Guided by these, he will seek the gulch or ravine into which the washings from the hills are carried. If there are gold croppings in the hills, the elements decay the hardest quartz, separate the gold, and wash it down into the gulches, where it naturally gravitates, by reason of its greater weight, to the bottom or "bed rock." Whatever gold exists on the surface of the mountain cliffs, it has been washing down for untold centuries, and its richest deposit is in the bottom of the gulch. If the surface of a gulch shows a fair "color," it is always safe to count on an increase of gold in going down through the earth to the rock. The prospector tries the earth by digging at various points, placing the dirt in his pan, and then carefully washing it out until the free-gold and particles of rich iron with gold in them only remain. These gradually separate from the earth as the pan is carefully handled and sluiced out, and settle in the bottom, and the prospector judges by the "color" he obtains of the value of the gulch. The gold will show in various shapes. Sometimes it is in coarse nuggets as large as flax-seed, and at other times it is in very fine particles or in thin flakes. If the digging shows "pay dirt," he takes his claim in accordance with the mining laws of the Territory or district, receives the water privilege in the same manner, and sends for his most trusted friends to take claims with him so as to have the whole gulch, as far as possible, under harmonious control. One man can take up only 200 feet, and by staking and recording it, his title is perfect until forfeited by palpable abandonment, which the laws clearly define. Hasty flumes and ditches are then constructed, the gulch is dug over as far as it will pay, and perhaps half the gold is saved by the rude process. If eight or ten dollars can be taken out per day to the hand, it is considered worth working. If less than that sum is realized, it is usually not considered good pay, and the restless pioneer fits up and starts off again to find more prolific fields of wealth, while the seedy and unfortunate take his place and make a precarious living by working what he has abandoned. His love of adventure is usually even stronger than his love of gold, and he is easily tempted from fair diggings to search for better; and from better, if ever found, he is as easily tempted to search for the realization of fabled wealth. Now and then he becomes reduced to the verge of beggary, but beggars are unknown in the mining regions, and he yields to stern necessity, and seeks legitimate employment as a laborer or miner for a season. No sooner does he recuperate his ever varying fortunes than he starts again upon his favorite prospecting path. Often his trips are taken in winter, when gold is believed to be in some particular locality, and he sleeps in the snow, and suffers exposure that would kill a dozen Eastern men. An Indian romance about gold deposits, or any vague rumor, no matter whence it comes, is enough to start the prospector any distance, regardless of weather. There is hardly a gulch or ravine in the Territories of Idaho or Montana, excepting where the Indians reside, that has not been prospected more or less by these sturdy adventurers, and scores of lives have been given to Indian savagery in efforts to find the wealth of Yellowstone. Even the scalping-knife does not deter the prospector, and each year furnishes new victims to the ambition to find the supposed rich deposits of Eastern Montana, where the Indians relentlessly dispute the advance of the pale-face. Thus have these pioneers prospected the whole mountain regions, and while the many millions of gold produced annually in Montana is the fruit of their work, there is not one in fifty of them who could pay his way back to the States to-day. Most of them have, at one time or another, been well off, or had a fortune within their grasp; but they waste as fast as they gather, and abandon claims to gratify the passion to discover better ones. When rich placer diggings are found, it is clear that good quartz leads must be in the vicinity on the hills, and if two or more different kinds of gulch gold are found, they indicate as many different sources or leads. To find them is often a task of no common magnitude, and sometimes the effort is entirely fruitless. All the hills near to pay gulches are dotted over with the mark of the indefatigable prospector. The gulches are often miles in length, and the character and quantity of gold found up to any one point in the gulch, indicates whether any or all the leads are still higher up in the mountains. If a particular quality of gulch gold is found only to a particular point, the lead or lead is from which it comes must be in that locality, and thus the yield of the gulches indicates with some certainty the cliff on which the lead lies. The lead, however, is but a narrow strip, usually from two to four feet wide, and months are often spent by dozens of prospectors in unsuccessful effort to find it. Every few rods on such hills show a hole dug out from three to ten feet deep. In order to gain title to the lead, it must be clearly ascertained, the wall-rock found, and a specimen of the genuine quartz deposited with the recorder, to guard against fraud. The place where the lead is found is called the "discovery," and the person who found it is entitled to the discovery claim exclusive of his rights to enter a claim upon the mine. He states the discovery, placards it, stating name and date of discovery, and selects his friends to locate claims adjoining his. Sometimes he is paid for the privilege of taking claims with him, but he is eminently kind and generous to his associates, and they are usually allowed to enter claims without charge. In nineteen cases out of twenty the operations of the discoverer and prospector cease with the discovery, staking and recording of the claims. Instead of developing what they possess, they will start out again in search of new discoveries. They have no capital for the proper development of their mines and the erection of mills, and, if they had, they would in most cases spend it in pursuit of the *ignus fatuus* that is ever luring them to imaginary fields of wealth. In time, reverses come. Hard winters and high prices for provisions soon waste the scanty resources of the prospector. The gulches are closed, and grim want flings its appalling shadows over the owners of mines which may have millions of slumbering gold. The speculator or "middle-man," steps in, buys his claim for a song, and sells it then to Eastern capitalists at a liberal and sometimes fabulous advance. After the weary, pitiless winter has been braved out in habitual suffering and privation, the prospector starts again and repeats the bitter experience of the past, until broken health or multiplied misfortunes make him work his way back to the land of his childhood, or consign him to an untimely grave in the bleak mountains. We little know how much of fruitless toil every dollar of gold we coin has cost the prospector. His life is one of incessant privation, sacrifice, and labor. He dreams of gold—not so much because he loves it, but because of his controlling, but ever deceptive hopes of discovering richer and still richer deposits of the precious metal. No matter how well his labor might be requited by devoting it to what he already possesses, he ever dreams of still more brilliant stores of wealth. In his estimation, what he produces has no value beyond supplying his wants and caprices, and supporting him in his delusive dream. Swift as the winds, even in this scarcely settled country, almost without mails and telegraphs, the rumor of new discoveries, perhaps hundreds of miles distant, seems to fly, and in an hour camps are almost depopulated, cabins untenanted, flumes and ditches abandoned to decay, and with the simplest mining outfit, thrown over their shoulders, the miners steam off to the new Eldorado. Last winter the word came, no one hardly knew how, from Salmon river, 150 miles distant across the Rocky Range, that the great gold deposits of the mountains had been discovered. None could wait for confirmation of the news, lest others should distance them in securing claims. Clad in snow-shoes they traversed the mountains in mid-winter, over a route destitute of provisions and shelter, and nearly 10,000 hapless prospectors were huddled in the Salmon river region, where there were not paying claims for 1,000 men. Fearful destitution followed. Many were frozen in their effort to get there or return, and now the tide of gloomy penniless men is passing back, glad to find a day's labor at anything to save them from starvation. Similar stampedes are made every year, and in nine cases out of ten they result in disaster. Thus does the prospector ebb and flow from occasional rays of sunshine to the darkest of days. He flits from one delusion to another, ever tireless in his devotion to his dream of a success he could not define if asked for the measure of his ambition. Disappointment seems to have no power to direct him in wiser paths. A few have, in the past, attained bewildering success, but only after mountains of faded hopes had checquered their experience, and he still dreams and perseveres, and waits but to recover from the shock of one defeat to another. His life is spent in mingled disappointment and toil as he marks the earth's great mines of wealth for others to develop and enjoy. But one affection at times ventures to dispute the mastery of his omnipotent dream. I have seen hundreds of these bronzed and sturdy men, who have encountered life's rudest blasts with unflinching purpose, and each one's eyes brighten, his harsh, furrowed lines soften, and his brave heart swells with emotion, as he speaks of "going home." It is the silver-lining to every shadow that crosses his path, and the crowning hope that nerves him in every trial. To be successful and return to old friends, perhaps to long separated, but still fondly cherished household gods, is the dream whose brightness gilds even the dream of gold. But few, however, realize even a tithe of their hopes, and many, very many, after bright prospects have faded in continued succession, bow to the inevitable doom of mortals, and ridge the mountain slopes with their monumentless tombs. No class of men have done so much to swell the nation's wealth, and none have been so poorly requitted. I never pass their humble graves without feeling that I could there drop a tear in sympathy with the thousands who serve the world so much—themselves so little—and when exhausted nature surrenders the unequal contest, the hand of the stranger must soothe their fevered brains, and perform for them the last mournful offices of earth.

California.

Placer County.—A couple of miners, working a quartz claim near North Ravine, recently made a rich strike. The *Herald* is informed that they took out one piece of quartz which is estimated to contain $1,500 worth of gold.....The Mission Tunnel Company's gravel mill at Yankee Jim's was destroyed by fire on the night of the 7th instant: cause unknown. The loss is estimated at from $12,000 to $15,000. No insurance.....One hundred tons of rock, worked from the Grizzly ledge, Devil's Canon, yielded $10 per ton.....The Green Emigrant mine yields rock literally covered with gold. The vein proves to be a regular fissure vein, lying between the slate and granite, the slate being the foot wall, which is 100 feet wide, and will itself average $15 to the ton.....Montezuma claim quartz assays $100 to the ton.....A rich discovery is reported near Auburn.....Companies mining on the Black Ledge get rock that yields $10 per ton.

Sierra County.—The *Mountain Messenger*, of September 14, has the following:

It is reported that the Fur Cap mine, situated about six miles from Downieville, is paying enormously—about $4,000 a week. .....Some parties prospecting near Excelsior, have obtained splendid prospects in an abandoned tunnel, and believed they have found a continuation of a very rich lead.....We are informed that some parties have struck fine prospects for an extensive gravel deposit near St. Louis, in this county. It is believed to be a portion of the lead running from Howard Flat to Scales' Diggings.....Messrs. Smith & Gray, of Gold Valley, have at last succeeded in reducing the heavily sulphured ores of their ledge, and making them pay. They use the chlorine process. They say they can save forty dollars where they did not save one by the old method of working.

Nevada County.—The Nevada *Gazette* of September 9th gives the annexed mining intelligence: R. C. Black has sold one-half of his interest in the Black & Young mill and mine, situated about half-way between the Star Mill and Eureka. The sale comprises one third of the entire property. James F. Irwin, of Louisville, Ky., is the purchaser, and the amount paid is $20,000 in gold coin. The ledge comprises 2,000 feet of ground. A tunnel into the hill 400 feet taps the ledge, which is developed by a drift or tunnel on it to a distance of 400 feet more..... The Banberry Company, near by Black & Young's mill, have had 80 tons of rock from their ledge crushed from the above mill, yielding $1,700, or over $21 per ton. The total cost of mining,

hauling and crushing was $750 per ton, leaving a net profit of $18 50 per ton, or nearly 200 per cent. over and above expenses. This company are now getting out another lot of 300 tons, to be crushed at the same mill.....The Commercial mill, one mile from Black & Young's, will be in operation some time next week. It is run by steam power, has ten stamps, and is fitted up with all the modern improvements. The proprietors of the mill own the Veatch & Powell ledge, located near by.....The Birchville Company are now putting up a five-stamp steam mill on their claim. Rock from this ledge has been crushed in arastras at Eureka, and yielded well. A lot of 100 tons, worked at Black & Young's mill, gave a return of $3,400—$34 per ton.....A company of San Francisco capitalists have recently purchased the Booth mine, near Eureka, and are putting up a whim to sink and raise rock. They have also purchased of Cochran & Black the Mohawk ledge, near by, for $1,500. But little work has been done on this claim, but it has external indications of its value. .....It is reported that D. W. Snapp, of Eureka, has bought Lambert & Co.'s mill, that was crushed down and severely damaged by the snow last winter, and will have it repaired and ready for business in a few weeks..... Patrick Mulligan & Co. are about to have 200 tons of rock from the Golden Age ledge crushed at Black & Young's mill. This is an old location, but the rock has never been tested to any extent by mill process..... The Reasoner Brothers have out 150 tons of ore from their claim, which is to be worked at Black's mill. The ledge is located three-fourths of a mile south of Eureka, and has never been tested by mill process.....The *Transcript* says: The Grizzly ledge is located on Devil's Canon, near the Magenta Flume. It was purchased some two years ago by J. M. Patter, of the Eagle company of Connecticut, and has since been worked steadily. A five stamp mill was erected and several openings made on the ledge. The last run of twelve days in this mill gave a yield of $1,200 or $100 per day. The ledge is so large and the rock so easily obtained that at this rate it can be most profitably worked. It is the design of the company to add five more stamps to the mill, and should the new level continue as good as where they are now working, a steam engine will be put up and the mill kept in operation all winter.

Inyo County.—Lone Pine district, in this county, on the eastern slope of the Sierra Nevada, is receiving attention from its development of rich silver ore. The Austin (Nevada) *Reveille* says: It lies about twenty-five miles south of the town of Independence in Owen's River valley. The mines occur east of the river in the Inyo range of mountains. The district was named after a large pine tree, which "stands solitary and alone," and its sombre appearance gives the impression that it is pining for companionship. We are informed that a town is springing up rapidly a few miles north of Big Owen's lake, not far from the lone tree. This section is described as the most fertile part of the valley, and is well adapted for pastoral and agricultural purposes. As far as we have been able to learn, the principal discoveries in the Lone Pine district were made in the early part of 1866 by an intelligent Mexican named Severiano Arrana, who located over twenty ledges. The ledges are represented to be well defined, and to average from three to five feet in width. The miners are chiefly Mexicans and Chilenos. The Mexicans, who came from the State of Chihuahua, trace many resemblances between the ledges of the Lone Pine district and those of that State. Nothing more plainly indicates the great richness of the mineral of Lone Pine than the fact that since its discovery those miners have been extracting the silver by rude processes of smelting in sufficient quantities to subsist themselves and to procure the necessary materials and tools for working. We have been shown samples of ore from two mines of the district which were brought here for assay, the yield of which was respectively $97 94 and $750 41 of silver per ton. The best of the samples exhibited the mineral stetefeldtite in good quantity. It occurs in nearly all the districts lying southeast of Austin, as well as in two situated in the southwestern section of the State. Indeed, it appears to be the chief bearer of silver in those districts. The purplish black, slaty appearance of the mineral should readily attract attention. Apart from the presence of the mineral in the ores of the Lone Pine district, they exhibit a marked resemblance to those of Silver Bend. Lone Pine may be reached from Austin by the way of Silver Peak, and thence to the Adobe meadows, thirty miles south of Aurora. From these meadows the highway is taken to Owensville, forty miles distant. Owens river is crossed at this point, and followed down the right bank for fifteen miles, where it trends to the eastward; from this point to Big Pine creek—a bold mountain stream—the distance is three miles. There is a good settlement at this place. From this creek to Independence the distance is thirty-five miles, and from there to the Lone Pine district twenty-five miles.

Colorado.

The Central City *Times* is "informed on the best authority that the average yield of all the silver ore reduced at the mill of Garrott, Martine & Co., at Georgetown, from the time it began running until this date, has been $150 coin per ton," adding: "If anything else were needed to impress us with a due sense of the importance that silver mining will hereafter attain in Colorado, we have it in this little piece of statistical information. It is doubtful whether the statistics of any silver mining district within the United States can show such a splendid result. At any rate it is quite enough to satisfy any reasonable craving after silver, and is quite enough in spite of every obstacle to build up a prosperous mining community at the head of Clear creek. The ores from which the above result was obtained were from lodes in the neighborhood of Georgetown, with the exception of two or three lots from the East Argentine district."....The same paper remarks: In an article yesterday on the "Mines of Colorado" we stated that the works of Garrott, Martine & Co. could hardly be called a success, it ores cannot be reduced at less than $50 per ton. By this statement we intended no reflection on the proprietors of the works for charging their price per ton, or really on the process they are using. The price of fifty dollars per ton, taking the price of salt, the small parcels reduced, and other circumstances into consideration, is not one cent too much to charge. We are assured by those who ought to know, that when salt can be had at a reasonable price, and when competition and steady work sets in, that ores will be reduced at a cost of nearer $20 per ton than $50 by the "California process." In that case the "process" will be a "success" in every respect, with silver as well as gold ores.....The Smith & Parmelee Gold company during the month of September, just closed, shipped 493 ounces of gold.....The gold shipments for the week ending Oct. 1 were as follows: Warren Hussey & Co., 350 oz.; Rocky Mountain National Bank, 660 oz., of which 251 were from the Black Hawk company; G. T. Clark & Co. about $7,000 value in currency. The whole currency value being about $30,318.... Mr. Hollister writes from Georgetown to the *Register* that the Baker company's mill is fast framing, and that at the mine wood is being hauled up for the coming winter and ore brought down. The rolling stock has been put on the Middle Division railway, and is landing the ore at the depot in fine style. The workings on the lode show it to better and better anvantage. The foot-wall, pitching to the northwest at an angle of thirty degrees, is as smooth and regular and straight for a thousand feet as if built of masonry. The head of the open cut at discovery is twenty feet high, and shows strong two feet of pay quartz and ore. The vein matter seems to be from four to six feet wide at this place on the foot-wall, with an outcrop towards the other wall twenty yards wide on the surface. What proportion of this outcrop, or whether any of it will conduce to the strengthening of the vein at a greater depth, is of course problematical. It is at least safe to say that the indications are good for a permanent lode of pay material, worth $100 a ton, five to ten feet in width. Commenting on the shipment East of $2,000 worth of silver taken by Martine & Co. from about nine tons of coin ore, he remarks: It is a fine yield, surpassing general expectation by about 100 per cent. As a general statement I may say they have treated something more than fifty tons, the average yield being $106 per ton. Some of this was carefully selected, and a good deal of it was not.....As to the smelting works he remarks: Mr. Johnson says they will cupel a handsome nugget this week. They have produced about $15,000 in silver since they started, besides what has gone into the bottom of the furnace, but it is impossible to tell from what ores in particular, no account having been kept. These smelting works constitute as good a thing as there is in this country in my opinion, but the way they have been managed is not calculated to show it much. The company should send to Europe for the requisite skill if they expect to do anything..... The Georgetown *Miner* has the following on the Live Yankee Reduction Works: On Monday last, during a trip to Central City, we availed ourselves of the opportunity of visiting the above-named works, which have recently been placed in operation in the Rochdale mill, Leavenworth gulch. The owners and proprietors of this enterprise are Messrs. Collier, Cushman & Farrell, the works being in charge of the latter named gentleman, who possesses a large experience in the working of gold and silver ores, more especially the latter, gained by a lengthy residence in, and working of the silver ores of Durango and Sonora in Mexico, and Virginia City, Nevada. The mill is built partially in an excavation made in the side of the mountain, whereby both floors of the works have outside entrances from the ground. The ore is delivered upon the upper floor, where stands the crushing machinery. The ore is crushed in a Dodge crusher, the jaws only being used, from which it is shoveled into a hopper that carries the partially pulverized ore to a ball cylinder, from which, when sufficiently pulverized, it is carried by an elevator to a hopper immediately over the chloridizing or desulpburizing cylinder. The cylinder in use is four feet in diameter by eight feet in length, lined with fire-brick, and having a partition of fire-tiles running from the back part to within twelve or fifteen inches of the front opening, being so arranged that the flame passes on both sides of the partition. No iron is exposed in the interior. The wheels around the cylinder, which run on the friction wheels beneath, are cams, or rather one side oval. These wheels are placed diagonally around the cylinder, thereby making the centre line diagonally through the cylinder. This cylinder, in our judgment, possesses many advantages over any now in use here, from the effectual intermingling of the ores which naturally results from a lateral as well as a forward motion. One other advantage is the total absence of iron, or any other oxodizing substance in the interior of the cylinder. The ore, after chlorodizing, is run into a German barrel, where it is run in connection with iron until the decomposition of the chlorine is effected, when it is run into a Hepburn pan for amalgamation. Steam is introduced into the pan during amalgamation. From the pan the tailings are run through a concentrator, where all the quicksilver is retained. The proprietors of these works are now ready to reduce silver ores at reasonable rates. Owing to their present limited capacity, they are unable to run large lots, but will reduce from one to five tons for any one party. We see no reason why the works cannot manipulate our ores successfully, and we hope our miners will give them an opportunity. Mr. Collier, the patentee of the cylinder, contemplates going East soon to make arrangements for the manufacture, when they will be furnished to parties desiring them at the cheapest possible rates. The right to use is placed at figures, and on such terms as to accommodate persons of limited means.....As to the results of these works, the editor of the *Register* pronounces them "satisfactory both to the owners and those who are having ore treated. One of the last ores worked was copper pyrites from the Burroughs. This ore was completely reduced to a peroxyd, and when amalgamated, the oxyd was found to be completely soluble, mechanically, in water, so that, when washed, nothing but the quartz portions are left. The amalgamation was instantaneous, and as nearly perfect as can be hoped or expected, while the yield is as large a per centage as has ever been taken from such ores in Colorado by any other process than smelting. The time occupied in roasting was much shorter than was expected. Enough has been done already to prove it equal to any, if not the best roasting furnace ever constructed. It is to be employed during the coming week on various ores, among which is a quantity from the White lode at Georgetown. From it a large yield is expected. .....The Nyanza lode is turning out a large amount of very rich ore, at the present time. Five tons of this ore has been brought down for reduction.....The Muscovite lode is showing a very fine vein of argentiferous galena in the bottom of the shaft. The mine is being actively worked.....Immense blocks of argentiferous galena are daily raised from the shaft on the New Boston lode. This mine excels all others in the district in its production of ore.....Prospecting is starting up again with renewed vigor. The recent discovery of some very rich veins of sulphuret ores has given a new impetus to this branch of business.....We saw a fine piece of silver bullion, a day or two since, which weighed twenty-four ounces, and was taken from six pounds of ore from the Wm. B. Astor lode. The coin value of the bullion is $32 40, or at the rate of $10,800 per ton..... Work upon the Nuckolls lode is being actively prosecuted, and a large amount of first-class ore is being raised.....We learn that both the east and west extensions of the Equator lode were struck last week.....F. R. Bennett, Esq., has shown us assays from the Mexican, Henry Clay, Saganaw, General Sheridan and other lodes in this vicinity, which are very satisfactory, ranging from $116 87 to $1,050 per ton, silver. These, or most of them, are about to be bought by Eastern capitalists and thoroughly developed.....We were shown, on Tuesday last, a large and very fine specimen of first-class sulphuret ore, from the Junction lode, situated near the Cliff, a new lode we noticed last week. The gangue rock carries considerable native silver. Mr. Foster will soon make several assays from the Junction ore, the result of which we will lay before our readers. The lode is the property of Mr. Rodgers. C. W. Bramel & Co. have made a new discovery of a very fine lode, situated about a half mile northwest of the White lode, on Republican mountain. The ore is a very fine black sulphuret and argentiferous galena, and from appearances, is very rich in silver. They have named it the Correct lode..... Mr. Kalbaugh exhibited to us, a few days since, the finest piece of silver bullion we have ever seen. The bullion weighed 236 ounces; coin value, $317 60. The bullion was extracted at the smelting works from Combs lode ore, but what amount we did not learn.....The Terrible lode is looking splendidly. There is now a vein of eighteen inches solid, clean mineral at the bottom of the shaft, with several smaller veins coming in. The shaft is about thirty-five feet deep.....The Mathew P. Parker lode is now being actively developed. This lode is the east extension of the Hunkadora.....Mr. Tiffany has brought over a fine lot of ore, for reduction, from the celebrated Malabar lode, Peru district.....Ore from the North America lode is being packed to the works of Garrett, Martine & Co., for reduction.....The following items are from the Denver *News*, October 2d: We are informed that not less than 172 ounces of gold dust was sold in town to-day, from Summit county. The miners have done finely over there this season, and have been taking out a large amount of dust, as well as preparing for future operations.....At the Colorado National bank, this morning, was a very fine lot of gold dust and bullion. Besides the two bars from the Cimeron mines, and the ones from Cherry creek dust, whose value have been already reported, there were six bars whose weight and fineness was as follows: 15 43-100 ounces, fineness 760; 9 14-100 ounces, fineness 666⅔; 25 31-100 ounces, fineness 885½; 35 7-100 ounces, fineness 765; 48 57-100 ounces, fineness 757½; 43 36-100 ounces, fineness 860. Their total value was about $3,000 in coin. In addition to these bars was a large quantity of dust, which, with the nine bars of bullion, was valued at not less than $18,000 in coin.....We saw at the mint this afternoon a fine lot of bullion weighed. There were thirteen bars, whose combined weight was 691 24-100 ounces. They would coin, on an average, $17 to the ounce, which would give a total value of $11,661 08 in coin, and between $16,000 and $17,000 in currency. The lot belonged to the different banks. We are also glad to state that much more gold is being assayed at the mint this year than there was last. The number of deposits are greater, and the amounts larger. The amount assayed this year is almost, if not fully, double that of last year.

Idaho.

The Owyhee *Avalanche*, Sept. 28, has the following: At a meeting of the stockholders of the Oro Fino and Morning Star Mining company, held on the 17th, an elaborate report of the mine, etc., was presented, from which the following is extracted: Work was commenced in the mine April 28th; since which time two shafts have been sunk of 92 and 67 feet respectively; 1,134 tons of ore have been taken out, and up to the 15th inst. 2,050 tons had been crushed, which yielded $54,193. The total amount of expenditures of working the mine, including repairs, incidental expenses, &c., amounted to $45,598, besides other liabilities amounting to $12,476, from which must be deducted about $8,000, value of supplies on hand necessary for supplying the mill, such as fuel, quicksiver, oils, acids, &c., including 7,000 pounds of shoes and dies. The company by-laws were revised and amended; one amendment allows the trustees to expend, for the benefit of the company, any sum under but not exceeding $100,000 instead of $15,000 as heretofore. Altogether, the affairs of the company are in a very healthy state. They are now ready to slope out and work a new level of seventy feet, and consequently they will take out much larger quantities of ore than before. A clean-up from seventy tons of ore last Saturday yielded $10,327, and to-morrow they will probably clean-up nearly as much, which, added to the amount above reported, will make an aggregate yield of above $75,000 since the 28th day of April, leaving about $25,000 in the treasury, with everything in good shape for future working.....H. B. Morse is running the Cosmos mill on North Star ore with a prospect of paying well. About 150 tons of ore is at the mill now, and teams are constantly hauling more.....In that district the Black mill is now employed on leviathan ore. The Iowa mill is nearly completed, and will be well supplied with Rising Star quartz. This mine has been leased to the Iowa company for a limited time and the best of the time will be made. General McQueen, superintendent, is giving employment to a force of men in the mine day and night, and will, ere long, have several months supply of pay ore out. The ledge at the point of present work is full fifteen feet wide, and in taking it out makes a shaft wide enough for a double set of miners and two windlasses overhead. There being such an immense quantity of quartz, only a very rich quality is treated as first-class, and the remainder as second and third-class. The mill is erected under the full direction of Mr. H. S. Jacobs, whose work will—we fully believe—bear the most critical mechanical examination. It will probably be completed within the next two weeks, and as it nears the finishing touch it shows quite differently from any other Owyhee mill; and, also, all its parts and modes of operation look perfectly reasonable, and give assurance of its being a perfect success. The Silver Glance company has a few men taking out ore on the Virginia City ledge, under the direction of Capt. E. B. Wilder. A new shaft is being sunk on the Leviathan by William Walsh and others. The tunnel on the Sherman ledge is going in slowly, and is expected to reach the vein very shortly. On Cottonwood, Prescott & Co. are delving into the Cloud with cheerful improvement in appearance of the vein.....The Walla Walla *Statesman* says: In our issue of the 9th instant we notice the reported discovery of rich paying mines in the neighborhood of Pen d'Oreille Lake. In corroboration of this report we give place to an extract from a private letter, addressed to Capt. Perkins, at Wallula, written by a gentleman who is on the ground, and whose statements may be considered entirely reliable. He says: We are in the midst of an excitement, caused by new gold discoveries in this vicinity. If these mines are half as good as represented, they will be the making of the place. Men in whom I have the utmost confidence tell me that they have prospected about seven miles of the creek, and got from 25 to 50 cents to the pan. A prospecting party has just started out, and in a few more days I shall be able to inform you sure as to the details.

Oregon.

Parties are still prosecuting their researches for quartz in the mountains about the headwaters of the Willamette. The Eugene *Journal* says: Messrs. C. H. Moses, H. F. Stratton and Squire Wilbur, who left here two weeks ago to make a more thorough investigation of the richness of the quartz lead they had previously found on the M'Kenzie river, have returned. They feel confident that they have "struck it," and will make preparations to work the rock as soon as possible. They took out several tons of rock and say that it bears as good an appearance as that which they tested.....The Dalla *Mountaineer*, September 7, says that Col. Ruckel, after a run of nine days, crushing about one hundred tons of quartz, netted nine thousand dollars of the finest quality of amalgam. The lode has now widened out to five feet, and the future prospects are more flattering than ever. This mine is the main source of the prosperity of Baker City and Powder River Valley, as most of the money now in circulation is drawn from this mill.

COAL AND IRON.

Michigan.

The Marquette *Journal* thus speaks of the Lake Superior mines and of the magnitude and importance of the iron interests which centre at Marquette: To those living in the large cities a mere approximate sense of their workings is ordinarily enjoyed. The subject is swallowed up, as it were, in its own figures, and the calculation of tons of shipment of ore are glanced at without a realizing sense of the labor involved, the capital employed, or the *modus operandi* of such gigantic undertakings. It is now our purpose to endeavor to supply such information as a careful examination of the subject has afforded, and in the description of one of our leading mines give some idea of the magnitude of all the rest. We will premise, however, by briefly referring to the topography of the country in which our mines are situated. The iron land lying west of Marquette and gradually ascending to the height of 1,000 feet, stretches a distance of forty miles in that direction, the uplifts of trap disturbing and tilting the beds of ore with their associated azoic schists, and have produced an uneven and broken surface of country. From the extreme point taken as the westward line the ore is of the magnetic kind, while south

wardly beds of specular as well as magnetic are found stretching to within thirty miles of Green Bay. The first of the mines were opened in a range of ore extending from the Jackson, situated thirteen miles west of Marquette, in a southwestwardly direction some six miles, including the Cleveland, the Lake Superior, Pittsburgh, Lake Angeline, and New England; and more recently another range of ore south of that just mentioned, including the Iron Mountain and Cliff mines, have been discovered and are now being operated. So that these mines, from the continuous deposits of ore differing in age and consequent geological formation, comprise in the first-named range the specular variety, where beds of brown hematite is found, while the latter constitute the specular, the brown hematite, and the magnetic kind. About the centre of this district, embracing sections nine, ten, and sixteen of Township 47, north of range twenty-seven west, and about sixteen and a-half miles from Marquette, the Lake Superior mine is situated. Some ten years since this mine was located. The ore was first found in pockets or veins on the surface giving a face in places of sixty to eighty feet in mining above drainage level. The process was first simple quarrying, involving only the labor of stripping the light deposit of dirt covering them and exposing the ore. Subsequently it became necessary to acquire a lower drainage level, for which purpose an expensive adit was driven in. This adit is eight feet in height, eight feet in width, and six hundred feet in length. At a distance of four hundred feet from its entrance, it has a branch fifty feet in length leading into an extensive opening. From the termination of the main adit another branch extends one hundred and thirty feet in length, from which a winze forty-two feet in length connects with the surface. Located near the central portion of the mine is a shaft intended as the main and pump shaft. It is eight by thirteen feet square, and one hundred feet deep, being driven at an angle of sixty-eight degrees through a bed of rock and immediately north of a vein of ore. From the foot of this shaft three drifts are being carried, in as many directions, into some of the most extensive deposits and under the present workings. A shaft will connect the end of each drift with the openings, and the ore, as it is stoped away from these shafts, will be trammed through the drift to the foot of the main shaft, from which point it will be raised to the surface and dumped into cars by means of a hoisting engine located near its entrance. The cars which receive the ore, raised from the main shaft, by means of trestle work, can be dumped into any of the line of pockets over which they travel. From thence the ore is to be drawn into the railroad cars, thus obviating the necessity of handling it from the time it is loaded into the tram cars in the drifts until it is removed from the vessels or used at the furnaces. From the main shaft, in a southwesterly direction, and distant some two hundred feet, the surface opening known as No. 1 is situated. From this opening the slate or laminated, as well as granulated ore is mined. Its product for the month of August was 1,510 tons; forty-four men, with a complement of four yoke of oxen and four cart horses with their drivers, being employed in the operation. About 150 feet northwest from the main shaft, the opening, known as No. 2, is situated; 2,280 tons was the product for the same month, with twenty-two men employed in mining it. No. 3 opening is situated about 100 feet in a northeast direction from the main shaft. Its product was 1,956 tons for the month of August, worked by twenty-one men. About 500 feet northeast of the main shaft an opening known as No. 4, has been made—at present not worked. Nearly due East of the shaft, and at about the same distance as No. 4, a small shaft known as No. 5, has been sunk some thirty-five feet in depth, and the ore is being stoped out from it. The product from this source for the month of August was 611 tons, with six men employed in the operation. About 450 feet east from the main shaft No. 6 opening is located, from which 230 tons were obtained in August, and upon which four men were employed in mining. No. 7 opening is 300 feet in a nearly eastward direction from the main shaft, and produced during the same month 297 tons of ore, and employed three men in mining. No. 8 opening is 200 feet due east from the shaft, and produced 143 tons of ore in August, and employed three men in the mining process. At a distance of 500 feet, in a southeasterly direction from the main shaft, a rich bed of hematite ore, known as No. 9, is situated. Its product for the month stated was 2,205 tons of ore, and eight men were employed in the mining. This rich and valuable bed is being worked at a depth of nearly sixty feet, and the ore is brought out of the workings by ox-carts, and is loaded there from into railroad cars close by. It is intended, however, at some future time, to lead a wire rope from the main hoisting gear to this point, and by so doing substitute steam for the labor of the animals now employed. No. 10 opening is situated about 1,000 feet distant from the main shaft, produced during the month of August 400 tons of ore, and employed eight men in mining the same. One and one-half miles southwest of the main shaft, situated in section 16, a rich mine of hematite, granular and slate ores, is being worked. Its product for the past season has been 10,000 tons. It employs about thirty miners, with seven horses and their drivers. The operation for pumping water out of this mine is performed by a pump which is worked by a turbine water wheel, the motive power to which is supplied by a flume of 2,500 feet in length which conducts the water to work the same. This branch mine, so to speak, is under the immediate supervision of Captain Barringer, who displays in his management of the business entrusted to his care a rare degree of intelligence, coupled with an earnest zeal for the interests of the company. The following statement shows the product of the Lake Superior mine for the month of September: Hard ore 11,544 tons; hematites, 1,698 tons; total, 13,242 tons.

Mineral Resources of the Pacific.

Second Annual Report of J. Ross Browne, upon the Mineral and Agricultural Resources of the Pacific States and Territories.

From the San Francisco Bulletin, September 18.

The appointment of a commissioner to collect statistics concerning the mines and mining methods of the States and Territories west of the Rocky Mountains, and including the mineral regions lying partly on the eastern slope of that range, was a wise thing. The importance of obtaining full and accurate information of the kind indicated, for the guidance of government no less than for the enlightenment of the general public at home and abroad, had often been urged; but the politicians were slow to appreciate it, and would perhaps not yet have authorized it but for the practical arguments directed in its favor from this coast, backed by the enlightened advocacy of Secretary McCulloch. Within six months after his appointment to this responsible task in 1866, J. Ross Browne, prepared a preliminary report, mostly relating to California, which made an interesting printed volume of 300 pages, and attracted more attention than any previous single publication relating to the Pacific mineral regions. The modest appropriation was continued, and he has this year obtained the material for a more comprehensive and original report, which will make about 500 printed pages, document size, and furnish a vast fund of information that will be even more useful in the places to which it relates than to students, legislators, emigrants, and capitalists at the East. Mr. Browne has called to his assistance an able corps of scientific and practical observers, whose researches have extended to the whole field of Pacific mineral explorations and discovery. Most of them have been specially employed for months in the journeys and investigations necessary to the obtainment of the mass of fresh matter to be digested and edited, while the commissioner himself has traveled over a considerable portion of the field in review, and brings to bear the experience of previous journeys and examinations. Altogether the force he has organized embraces twenty or thirty experts in the specialties or departments severally assigned them, and it is not too much to say that the result is a work of great comprehensiveness, originality and value, which will take rank at once as a standard official authority, and cannot but have a very favorable effect in directing emigration and capital to the Pacific coast, and in preventing crude legislation and rash investments. No person abroad can read the report without being profoundly impressed with the view it presents of the immense resources of our comparatively unoccupied territories. Its sober statistics are infinitely more impressive than the most eloquent generalities of statement, and are accompanied by too candid a rehearsal of the practical difficulties and needs of the mining regions to encourage reckless speculations.

Contents of the Report.—The report is divided into sections or chapters, giving separately detailed descriptions of the resources of the Pacific States and Territories, and including accounts of bordering territories belonging to other nations, but largely inhabited and developed by our own citizens. In this latter respect the report follows the plan pursued by Professor Whitney with reference to the geology of California, and its outlying connections, which is essential to a full understanding of the central matter. The Pacific States and Territories are taken up according to their geographical position.

Montana, Idaho, and Utah.—These territories were specially explored by Dr. A. Blatchley during the present year. He visited all the prominent mining districts, and gives geographical and geological descriptions of the country much of which is entirely new, to the literary world at least. The general resources of these great territories, aside from minerals, are also justly considered, and it is evident they are sufficient to form self-sustaining and wealthy States. The past and present condition of the mining interests is fully stated. A valuable article on prospecting in the Territories is furnished, which describes the external indications and aspects of placer and lode mines, methods of occupying, holding and opening the same, etc. The quartz mills, systems of working quartz, yield of the lodes, etc., are also described and discussed. The general account of the Territories is amplified by citations from all the principal authorities on the subject, from the explorations of Stevens and Mullan to date. There is also an additional report of much value on Montana, from W. S. Keyes of that Territory.

Washington Territory and Oregon.—The mineral and agricultural products of these geographical divisions are written up in great part from notes made by Mr. Browne during a recent personal visit. Mr. Cushman, receiver of public moneys at Olympia, contributes an interesting paper on the ship-building, fisheries, and lumber resources of Puget Sound. There is no question that Puget Sound is destined to become a great ship-building centre, and that industry on this coast would already be assuming large proportions with a reasonable tariff. The statistics of the lumber trade, and reports on the coal and miscellaneous resources of Washington Territory, furnished by Elwood Evans, late territorial secretary, show that Washington must ultimately possess an importance on this coast at least equal to that of Maine on the Atlantic side, while the climate is milder. The Maine men themselves are looking to it as a field for their peculiar enterprise and have lately concluded to initiate on the shores of Puget Sound several lumbering and fishing settlements. The data as to the products of Oregon are very full, and show that while this quiet unpretending State has been assigned to an exclusively agricultural position, she possesses mineral beds of varied character and immense value. Aside from gold and silver, which are quite abundant, especially on the John Day and Powder rivers, as shown by Mr. Dennison, her iron deposits appear to be of great importance. Mr. Browne's notes describing these deposits and the new iron works which have commenced shipping metal to San Francisco, justify the conclusion that Oregon may yet develope a great manufacturing interest. The mines create a remarkable demand for machinery, and if the enormous quantities of iron consumed by the foundries on this coast can be produced here, this one resource must ultimately equal, if it does not surpass the value of the gold product. Mr. Hill contributes an interesting paper on the manufactures and commerce of Oregon, which are rapidly extending lately. Some valuable original notes on the navigable rivers, and navigation system, and transportation business in Oregon are furnished by J. C. Ainsworth, president of the Oregon Steam Navigation Company. From these it appears that this company's boats conveyed up the Oregon rivers from the ocean in 1864 about 36,000 passengers. For several years before the number of passengers varied from 10,000 to upwards of 21,000 per annum. Most of the passengers went direct from California forward to the mines of Oregon, Idaho, and British Columbia. These statistics illustrate how heavy has been the drain on our population since the discovery of the northern mines, and what a large traffic has sprung up on the northern coast route.

Nevada.—A more elaborate account of the physical characteristics, mineralogy, mining, agriculture, and miscellaneous resources of Nevada is given than we have seen in any single publication. Myron Angel, of Austin, contributes a separate paper on the eastern portion of the State, embracing detailed descriptions of the numerous districts and principal mines. The southern and northern districts are described in like manner by Dr. de Groot, who is well known as one of the pioneer and most thorough prospectors and observers in Nevada since 1859. His report embraces the remarkable new districts stretching to the Colorado country. R. H. Stretch, late State mineralogist, treats of Virginia and vicinity, including the great Comstock lode, its mines, mills, methods, and yields. This portion of the report, aside from its descriptive merit, is valuable for the variety and accuracy of its practical deductions, going to the cost of extracting, crushing, and treating ores, and giving the processes through their details, with statistics of gross and net yields. One can see from this that while the Nevada system is perhaps the most perfect of any silver mining region in the world, it has been conducted with a lavish stress for inordinate production which begins to react upon the market value of shares, and to teach a needed lesson of moderation and prudence. The silver product of Nevada for 1867 will probably be about $19,000,000—an increase of $3,000,000 over that of 1866.

California.—Although the first report of Mr. Browne, treated at great length of California, much of the information it contained was necessarily a compend of facts before published. The ground was thus cleared for a mass of new matter in the second report, collated by numerous writers after patient original research. John S. Hittell, who made a special exploration of the principal mining districts extending through several months of this year, furnishes a general view of the present condition and prospects of California gold mining, as well as of the society and agriculture of the mining regions. He gives fresh descriptions of all the prominent mines, ditches, and sluices, and a variety of statistics illustrating the progress, cost, profits, and losses of mining. It is evident, from Mr. Hittell's report, that the mining society and industry of California are passing through a transition period from unstable, vascillating, and desultory conditions, to a fixed, regular, and systematic basis, that promises to improve the *morale* of the business, as well as to increase its certainty and profits. Quartz is steadily advancing to the front rank, and is becoming the nucleus of a permanent and safe industry, widening the field for labor and increasing population. Several other papers on California, besides Mr. Hittell's, are contributed by various parties, including the commissioner himself, and touching a wide range of cognate topics. H. C. Bennett furnishes a valuable review of the general mineralogy of the State, including a full account of the copper mining interests, of the iron, cinnabar, salt, and borax deposits, kaolm, zinc, tin, lime, marble, gypsum, manganese, and many other useful substances, which are found in abundance for the most extended home use, as well as for exportation.

Arizona.—A full account of Arizona is given, in great part from notes made in person by the commissioner during two visits. Messrs. King and Gardner, late of the California geological survey, and now of the Pacific geological expedition, furnish a report on the geology of the Territory. Late mining data from every district are furnished by Governor McCormick. Some suggestive observations on the navigation of the Colorado are also given.

Adjacent Mining Territory.—Considerable attention is given to mining fields adjacent to our own territory on the Pacific, in which American capital is invested. An account of an exploration of Lower California is compiled from the personal observations of the commissioner, Captain Scammon, Professor Gabb, and Dr. Lochr, embracing a topographical, geological, and general description of the peninsula from Cape St. Lucas to San Diego, with accounts of all the principal mines. Observations on the other Northern States of Mexico are furnished from the latest geological and mineralogical researches of Remond and others. Mexico generally, so far as its mineral system is concerned especially, is noticed sufficiently to show the character of its resources and its connection with our own system. The South American mining interest is briefly described and reviewed. The expense and methods of working the South American mines, the products and profits, are detailed for purposes of comparison. Australia is also treated at some length from the same stand-point, as well as British Columbia. Authentic data from Cariboo and Vancouver Island are given from notes made by the commissioner during a second visit the present season. Brief notes are given upon the harbor settlements and products of Alaska, including the report of Captain Scammon, lately synopsized in the *Bulletin*.

Miscellaneous Matters.—A variety of original papers are given, which are strictly pertinent, but cannot be included under any of the above headings. Among these we may enumerate the following: A mass of statistics from Wells, Fargo & Co., relative to the export and specie transportation of the Pacific. Observations on the gold product of the world by John S. Hittell, giving the historical and commercial facts connected with the use of the precious metals, including those which relate to the flow of the metals to Asia, and its bearings on Pacific commerce. An article on the China trade, illustrating the condition and growth of our commerce with the Orient. An exhaustive paper on the miscellaneous products of the Pacific States and Territories, including iron, coal, marble, lead, etc., with an account of our manufactures, railroads, and general industry, by H. C. Bennett. Historical and descriptive accounts of the Pacific and Overland telegraph lines, with tariffs, distances, working peculiarities, costs, connections, etc., by J. Ross Browne. The ports on the Pacific coast, their character and features; internal revenue returns; notes on the development of various new branches of industry; account of steam and stage routes; cost of freight from San Francisco to various points in the interior; progress of the Pacific railroad, and its probable effect on the trade and commerce of the Pacific States; treatise on the continuity in depth of mines, from the best authorities, with citations from accounts of all the great mines in the world; report of Mr. Carlisle on tunneling and blasting, giving a great fund of practical information.

General Remarks.—Such is a partial statement of the contents of Commissioner Browne's second report, which, with the first, will have been furnished to the country, at a cost to government of about $10,000 in gold, independent of the expense of printing. But besides the paper specially named, there are several others which we have not time to enumerate all directly relating to the resources of the Pacific States and Territories. The commissioner's introduction will give certain leading deductions and suggestions growing out of his remarks. The report embodies the gist of the latest researches and most approved methods of mining. Much of this information is not at present available to the general community of miners, and cannot but prove of great value to them. The report shows that mining is now becoming more systematic. It illustrates the comparative decrease of placer mining and increased development of the quartz interest. It shows that while more poor ore than rich is extracted, the latter will be the largest and safest reliance for profitable results, when strict economy and the best saving methods are practiced. The increased cost of working with increase of depth is shown, and the idea maintained that there is no evidence of decreased productiveness from any other cause.

Practical Suggestions.—Particular attention is called to the necessity of a more economical working of mines. More saving processes is the desideratum, not more mines. A thorough knowledge of metallurgy and mining engineering is necessary. To this end the commissioner thinks we should have a national school of mines in the heart of the mining region, conducted on strictly scientific and practical principles, under the control of none but scientific and practical men. The argument he makes on this subject will command attention. He states that the subject of the concentration and parting of ores is now attracting more attention than any thing else in our mineral developments. The immense loss of gold is shown by an estimate based on statistics collected with much care. If we suppose the yield of gold in 1867 to be $70,000,000, the loss would be rated at least 25 or 30 per cent. Better methods of separation and concentration would have made the yield fully $100,000,000. In Montana nearly all the mining is in free gold. Absurd inventions and new-fangled methods, imported from the East, where there is no experience in mining, makes the loss 30 per cent., although it should be much less than in other districts where the gold is more or less associated with other metals. In Idaho, California machinery is generally used, which is the best made. The lodes are worked to better advantage, and the mills do well and keep close to the assays. None of them, however, are yet working sulphurets, except one at Pioneer with results unknown, but probably successful. The loss in that territory is probably 20 to 25 per cent. In Nevada the lodes are mostly silver-bearing. At Austin the mills profess to save 80 per cent. In some instances they work up to 90. The loss is probably not more than 15 to 18 per cent. The ores are roasted almost universally. On the Comstock lode the loss is much greater. The Comstock mills do not, probably, save more than 65 to 70 per cent., notwithstanding all the ingenious devices for saving in the tailings. In California there is a large number of excellent mills; and while in many cases the cost of mining and crushing has been reduced to a minimum, the saving is also frequently quite close. Sulphurets are are best treated by chlorination, although there are various new processes for which much is claimed. The chlorination process is said to save 90 per cent. It is interesting to notice, in connection with the above, the following statement of the per centage of mining loss in other parts of the world, which is compiled from official documents: St. John del Rey, Brazil, 30; other mines in Brazil, 30 to 35; Piedmont, 35; Hungary and Tyrol, 50; Zell, 35 to 40; Chili, 66; Australia, 40. These figures further illustrate the importance of seeking and adopting the best means to reduce the per centage of loss. Mining and crushing are already comparatively cheap, and will be cheaper only when the prices

of labor and material fall. Getting the precious metals out of the ore is the great point. Mr. Kustel has devoted special attention to this subject, and is now preparing a valuable work in reference to the concentration of ores. He furnishes a paper on the subject to the forthcoming report. Mr. Browne will probably proceed to Washington with his report by the first of October. It ought to be printed at an early day, and a large edition furnished for discriminating circulation where it will be most useful.

MARKET REVIEW.

FRIDAY EVENING.

Gold and Silver Stocks sell at the board as follows: Edge Hill $4 50; Rocky Mountain, 83@5c.; Seaver, 89c, 11c @ 35c.; [illegible] $9 00; N. Y. & Eldorada, $3 20@$3 35; La Crosse, 75c.

	Bid.	Asked.		Bid.	Asked.
[illegible] Silver	—	1 60	Liberty Gold	—	7
[illegible] Gold	79	80	Manhattan	95 00	—
[illegible] Gold	—	1 00	Midas Silver	—	2 50
[illegible] & Exeter Gold	50	1 00	Montana Gold	13	19
[illegible] Gold	70	75	New York	75	80
[illegible] Gold	—	3 00	New York & Eld'o	3 35	3 55
[illegible] Gold	—	1 00	Nye Gold	—	5
[illegible] & S	—	10	Owyhee Mining	—	25 00
[illegible] Gold	7 00	—	People's G. & S. of Cal	—	40
[illegible] Gold	5 00	5 70	Quartz Hill	1 35	1 40
[illegible] Gold	76	79	Reynolds Gold	— 1	4
[illegible] Gold	4 45	4 75	Rocky Mountain Gold	— 43	45
[illegible]	—	4 00	Seaver Gold	11 35	11 40
[illegible] Gold	1 05	1 50	Smith & Parmelee Gold	3 90	4 05
[illegible]	—	40	Sonschorier	—	9 95
[illegible]	—	90	Symonds Fork Gold	—	1 00
[illegible] & S	—	9 75	Texas Gold	4	10
[illegible]	—	12	Twin Riv. Sil	40 00	80 00
[illegible]	15	20	Vanderburg G	—	75
[illegible]	—	45	Yellow Jacket	—	50
[illegible]	54	60			

Copper Stocks may be quoted:

	Bid.	Asked.		Bid.	Asked.
[illegible]	10 00	—	Hilton	—	1 00
[illegible]	50	—	Isle Royale	—	6 00
[illegible]	20 00	—	Knowlton	—	4 00
[illegible]	3 00	—	Mendota	—	4 00
[illegible]	1 75	—	Ogima	50	—
[illegible]	8 00	—	Rockland	—	8 00
[illegible]	2 00	—			

Petroleum Stocks.—Buchanan Farm, sells, 63, at 40c.; United States, reg. [illegible] quoted:

	Bid.	Asked.		Bid.	Asked.
[illegible]	$4 00	4 25	N. Y. and Allegheny	3 00	3 25
[illegible]	41	42	Pit Hole Creek	10	—
[illegible]	75	75	Rynd Farm	16	18
[illegible]	1 00	1 05	United Pet. Farms	10	—
[illegible]	1 50	1 60	United states	3 00	3 10
[illegible]	—	15	Union	1 50	—
[illegible]	—	15			

Miscellaneous Stocks.—Cumberland Coal preferred, 29; Pacific Mail, [illegible] Western Union Telegraph, 83½@84; New York Central, 112¼; [illegible] 104; Michigan Southern, 80; Pittsburg, 85¾; [illegible] Northwestern preferred, 66¾; Rock Island, 97¼; Fort Wayne, 1[illegible] Mississippi, 26¾; Adams Ex., 63½@64; American, 62@[illegible] Wells, Fargo & Co., 55@55½; Merchants' Union [illegible] Quicksilver, 22¾; Mariposa Preferred, 17; Rutland Marble, [illegible] Wabash Coal, 9[illegible].

Government Stocks.—The currency of the seven-thirties has received [illegible] the recent discovery of altered notes. The public and the [illegible] continue to sell their government securities to such an [illegible] extent. On the contrary, there is a receiving disposition on to [illegible] are the current quotations:

[illegible] 1867	112½@—
[illegible]	—@112
[illegible] 1881	111 @ —
[illegible] 1881, [illegible]	111¾@111¾
[illegible] 5-20s, 1862, regist'r	103 @ 104
[illegible] 5-20s, 1862, coupon	111 @ 111¾
[illegible] 5-20s, 1864, coupon	108¾@108¾
[illegible] 5-20s, 1865, coupon	108¾@108¾
[illegible] 5-20s, July, 1865, "	106½@106½
[illegible] 5-20s, July, 1867, "	106½@106½
[illegible] 5-20s, 1867, "	104½@104¾
[illegible] 10-40s	103¾@104

Foreign Exchange is quoted:

[illegible] sterling bankers' 60 days	108⅞@109
[illegible] sterling bankers' sight	109⅛@109⅜
[illegible]	60 —
[illegible] Paris	5.20 @ 5.17½
[illegible] Antwerp	5.19½@ —
[illegible] Swiss	5.21½@ 5.18¾
[illegible] Hamburg	5.21½@ 5.18¾
[illegible] Frankfort	35½@35¾
[illegible] Bremen	40 @ 41
[illegible] Leipsic	40½@40¾
[illegible] Berlin	78½@78⅝
[illegible] Vienna	71¾@72

Gold is active. Brokers are freely offering 7 per cent. in gold for thirty days; [illegible] that rate is paid upon demand transactions.

A dispatch from San Francisco, dated Oct. 14, announces the departure o[illegible] Colorado for Hong Kong and Yokohama, with one million seventy-six [illegible] in treasure. Another dispatch, dated the 10th inst., states that the [illegible] Montana, for Panama, sailed to-day, with $771,984 in treasure, of [illegible] for New York; and another, dated the 9th inst., announces [illegible] that port of the steamship Oriflamme, from Portland, Oregon, [illegible] in treasure.

The Evening Bulletin's Review of the trade and commerce of San Francisco [illegible] months of the current year, shows an import trade of about $12,[illegible] The amount paid for duties (gold) was $6,000,000. The aggregate [illegible] exports was $16,291,000. The value of the wheat and flour exported [illegible] 7,000.

Gold—[illegible]

Copper has been inactive, and it is difficult to give a correct description of [illegible] The sales of the week are probably 700,000 to 800,000 lbs. at 25@[illegible] for Detroit, 24@24½c. for Baltimore, and 24½@24¾c. for Portage Lake. [illegible] 400,000 lbs. Bait more were sold at 24, and 100,000 lbs. for November [illegible] at 24½c. Of Lake very little is offering.

Tin is dull. Straits are quoted at 25 3-4. Banca 27. English 25½, with a [illegible] big bid.

Spelter and Lead.—No business of importance; 6½c. gold is the quota[illegible] Pig iron is $41½ to $42 for Glengarnock. From 500 to 600 tons of vari[illegible] brands, both new and old, have been sold.

THE SLATE TRADE.

NEW YORK, Oct. 16, 1867.

The trade is brisk, and prices firm. The Southern market is rather bare, [illegible] to call for more first quality Slate. There is still an abundant sup[illegible] of the poorer qualities on hand, but really prime Slates are scarce. The [illegible] are as follows:

Vermont purple,	1st quality, per	square		$11 00@12 00
[illegible]	2d	"	"	10 00@11 00
[illegible] green,	1st	"	"	11 50@12 50
[illegible]	2d	"	"	10 50@11 50
[illegible] red,	1st	"	"	12 50@13 50
[illegible]	2d	"	"	11 50@12 50
[illegible] & [illegible] blue,	1st	"	"	10 50@11 50
[illegible]	2d	"	"	9 50@10 50

PRICES DELIVERED. PER SQUARE

On cars or boat at Buffalo	$11 50	per square.
Delivered in Cleveland	12 50	"
" Dayton	13 00	"
" Cincinnati	13 50	"
" Indianapolis	13 50	"
" Chicago	13 50	"
" St. Louis	14 00	"
" Louisville	14 50	"
" Detroit and Toledo	12 75	"

Intermediate, 75 cents per square less.
Red $4 per square more.
New York Red, same as Purple.
NEW ORLEANS.—$19@20 per square.
CHARLESTON, S. C.—$15@16 per square.

Commenting on Slate affairs, the Superior (Wisconsin) *Gazette*, Oct. 5, remarks that this new element of business is attracting considerable attention. Experienced men now on the ground pronounce the Slate produced at the Lake Superior quarries to be of the purest quality and the cleavage perfect. Three of the locations will be worked during the winter, employing in the aggregate from forty-five to thirty men; and with the opening of navigation in the spring there will be a sufficient quantity of roofing slate ready for shipment to load one or more vessels of two hundred tons burthen each.

The Reese River (Nevada) *Reveille* says: "It has been suggested that the peculiar rock found in layers of various thickness, which occurs in great abundance in the district of Hot Creek, would be suitable for roofing purposes. The rock is a laminated porphyry. We have been shown leaves a foot long and from a sixteenth of an inch to an inch and a half thick. It appears to be hard and brittle, and might answer well for roof covering if it would bear punching. The experiment is worth trying. We learn that the drying-room of the Old Dominion mill at Hot Creek is laid with layers of it two and a half inches in thickness, which form a solid compact surface."

THE IRON TRADE.

Domestic.—The market for Pig Iron this week has been more brisk, though the increase in business was unaccompanied by any change in prices. Scotch Iron meets a ready sale at prices quoted. There have been no large sales. Buyers are very cautious, and purchase only in small quantities of one hundred or two hundred tons. Seven hundred tons will cover all actual sales of American Pig for the past week. In Rails the market is exceedingly quiet, with no change in prices. We notice the sales of 125 tons No. 1 American at works, on private terms, and of 100 tons of old Rails at prices not stated.

In stores, for the manufacture of which large quantities of our Iron is annually used, business has been unusually lively.

In Manufactured Iron the trade is very quiet, and the demand rather small. No alteration in prices.

Foreign.—The English Iron trade continues steady. Pigs are, if anything, firmer, and Manufactured Iron is unquestionably making better prices. The general opinion seems to be that matters are mending, which, as we take it, is a very good augury of an early improvement.

WEEKLY STATEMENT OF NEW YORK IMPORTS.

The following table shows the quantity and value of iron imports at the New York Custom House for the week ending and including Oct. 11th, 1867:

	QUANTITY.	VALUE.
Iron, Hp., tons	103	$4,352
Iron, Pig, tons	1,550	22,770
Iron, R. R., bars	34,423	204,972
Iron, sheet, tons	359	47,091
Iron, Tubes	48	152
Iron, other, tons	748	42,219
		$321,856

BOSTON IMPORTS OF PIG IRON FROM JAN. 1st TO OCT. 12th, 1867.

	1867.	1866.
From Great Britain, tons	27,171	17,874
Coastwise ports	7,952	11,320

Pig Iron

Transported by Lehigh Valley Railroad Co., for the week ending Oct. 12, 1867.

FROM	TONS.	TOTAL.
Carbon Iron Co	330	
Lehigh Valley Iron Co	190	
Thomas Iron Co	850	
Lehigh Crane Iron Co	630	
Allentown Iron Co	320	
Robert Iron Co	295	
Glendon Iron Co	180	
Other shippers	380	3,245

Shipments of Iron to the United States from Liverpool.

The following are the shipments of Iron to the United States from the port of Liverpool, for the week ending Sept. 28, 1867:

CHAINS AND ANCHORS.—Baltimore, two tons chains; Boston, two tons chains; New Orleans, twelve tons chains; New York, two tons chains; Philadelphia, two tons chains.

IRON, BAR AND BOLT, TONS.—Boston, 80. Galveston, 134; New York, 282; San Francisco, 319.

IRON CASTINGS, TONS.—Charleston, 5.

IRON, HOOP, TONS.—Boston, 2; Galveston, 17; New York, 157; San Francisco, 9.

IRON, PIG, TONS.—Charleston, 50; New York, 110; San Francisco, 500.

IRON, PLATE, TONS.—New York, 958; Galveston, 25.

IRON, RAILWAY, TONS.—Philadelphia, 349; New York, 8.

IRON, ROD, TONS.—Boston, 51.

IRON, SHEET, TONS.—Boston, 16; Galveston, 16; New Orleans, 2; New York, 223.

IRON WIRE, TONS.—Boston, 5; Galveston, 2.

English Exports of Iron to United States for 1866 and 1867.

The following table shows the exports of Iron from England to the United States for the years 1866 and 1867 respectively:

	1866. TONS.	1867. TONS.
Pig and Puddled Iron	6,305	15,546
Bar, Angle, Bolt and Rod	4,858	2,915
Railroad Iron of all sorts	1,827	12,869
Iron Castings	244	291
Hoops, Sheets, and Boiler Plates	2,609	3,774
Wrought Iron of all sorts	581	694
Steel unwrought	1,248	1,376
Total	17,232	38,468

Market Prices.

NEW YORK, Oct. 18, 1867.

DUTY.—Bars, 1 to 1½c. per lb.; railroad, 60c. per 100 lbs.; boiler and plate, 1½c. per lb.; sheet, band, hoop and scroll, 1½ to 1¾c. per lb.; pig, $9 per ton; polished sheet, 3c. per lb. Payable in gold.

Anthracite, No. 1, best	$44 00@45 00	6 to 12x¾ to 5-8		$165 00
" 2x, fiery	40 00 41 00	Common Iron		
" Grey Forge	35 00 38 00	¾ to 2 in. round and sq		95 00
Scotch Pig, from vessel	41 50 44 00	1 to 6 in. wide by ⅜ to 1 th		95 00
Charcoal, coal blast	50 00 67 00	1 to 6 in. wide x⅛ to 5-16 th		105 00
Old Wrought scrap, Im'p'd	49 ...	½, 9-16, 5-8, 11 16, r'd & sq		105 00
" " " Am. vsl	47 50	2½ to 3 inches		105 00
English rails, gold	52 50 53 00	Refined Iron.		
American " at works	78 00 80 00	⅜ to 2 in. r'd and sq		100 00
Nails and spikes	5 75	1 to 6 in. wide x ⅜ to 1 th		100 00
Old Railroad Iron	49 50@50	2½ and 3½, round and sq		115 00
Hoops, ⅜ per ton	$100 00	Rods—5-8 and 11-16, round & sq		
" ½ "	140 00	⅜ per ton		105 00
" ⅝ "	150 00	½ and 9-16 round & square		110 00
" ¾ "	140 00	7-16, round and square		120 00
" 1 "	140 00	⅜ " "		125 00
" 1¼ "	137 50	5-16, " "		130 00
" 1¼ to 2 per ton	137 50	¼, " "		135 00
Scroll Iron—⅜x14, per ton	180 00	3-16, " "		165 00
" 12 " "	170 00	Horse Shoe Iron		127 50
" 10 " "	160 00	Band—1 to 6 in. x 3-16 to No. 10		132 50
" 3-16 " "	150 00	1 to 6 in. x No. 11 and 12		132 50
" ¼ " "	140 00	Ovals and half Rounds.		
" ⅜x14 " "	160 00	⅜ to 1¼		127 50
" 12 " "	160 00	⅝ & 11-16		132 50
" 10 " "	150 00	½ & 9-16		137 50
" 3-16 " "	140 00	Nail Rods, per lb.		
" ¼ " "	135 00	"		9@10¼
" ⅜x14 " "	150 00	"		8¾c
" 12 " "	150 00	Norway Shapes		10¼c
" 10 " "	140 00	Spring Steel		10¼c
" 3-16 " "	135 60	Tire " 2 to ¾x¾ & 5-16		10¼c
" ¼ " "	132 50	Toe Cork Steel		10¼c
Sweed'h I'n, ord'y sizes, ⅞ to 2 i'ch sq., per ton	155 00	Sleigh Shoe Steel		10¼c
1½x⅜ to ⅝ and ¾ in sq	160 00	Plow Steel—6 to 14x¾ to ⅞		11c
1¼x⅜ to ⅝	165 00			

PHILADELPHIA, Oct. 16, 1867.

Anthracite Pig, No. 1	$44 00@$45 00	Hoop Iron, 1 and up	145 00@ .. ..
do do No. 2	40 00 42 00	" ⅞ "	160 00 .. ..
do do No. 3	35 00 38 00	" ¾ "	170 00 .. ..
Charcoal Wheel	50 00 55 50	" 5-8 "	210 00 .. ..
" Blooms	100 00 110 00	" ½ "	240 00 .. ..
Scotch Pig (by cargo)	43 00 45 00	Nails and spikes	5 40 .. ..
Railroad Bars (Am.)	80 00 85 00	" 4d	6 90 .. ..
Refined Bar	85 00 90 00	" 3d	7 40 .. ..
Common "	80 00 85 00	" 3d, fine	7 90 .. ..
Band Iron, 1¼ to 6	115 00 125 00	Boiler Rivets	7½c. per lb.
" 12 " 3-16		Railroad Spikes	5½@6c. per lb.
Hoop Iron, 1¼ and up	140 00		

[From Boston Shipping List.]

BOSTON, Oct. 18, 1867.

Swedish—common ass'd	$150@155	Scotch Pig, No. 1	.....
English—com	95 100	Gartsherrie	$45@46
do refined	105 110	No. 1, other brands	43 45
do sheet, per lb	6½@10c	American, No. 1	42 48
Russia, sheet	19@20c		

CINCINNATI, October 17, 1867.

Pig.—The demand is somewhat improved, though prices are barely maintained, and the market closed dull.

	Cash per ton.
Hanging Rock H. B. Foundry	$47@50
" " Mill	45 46
" Cold Blast	58
" Car Wheel	60
Tennessee, Cold Blast	$50@51
Missouri	52 55
Jackson (stonecoal) Foundry	46 48
Blooms	110 125

Manufactured.—Quotations are nominally unchanged, though there is some irregularity in prices, and card rates are not adhered to. Trade is rather more active.

	B.	C. C.
Flat Bar	4¾ to 5¼	6 to 6½
Horse-shoe Iron	6¼ " 6¾	7½ " 8
Heavy Band	5¼ " 5¾	6¾ " 7
Round and Square	4¾ " 8¾	6 " 10
Saddle-tree	6 " 6¾	7½ " 8
Hoop and Light Band	6 " 10½	7¼ " 11¾
Oval Iron	5½ " 6	6½ " 7¼
Half Oval and Half Round	5½ " 6¼	6½ " 7½
Angle Iron	6¼ " 7¾	7½ " 8½
T and Hollow Rail Iron	6	8
Saw-mill Track	6	8
Sheet Iron, 10 to 17	6	9
" 27	7	10
Boiler Plate 3-16 to 5-16	—	8

LONDON, Sept. 28, 1867.

(From the London *Mining Journal*.)

Bars, Welsh in Lond.	£6 10 0@..	Do. railway, Wales	£5 10 0@6 0 0
Ditto to arrive	6 10 0	Do, merch Tyne or	
Nail rods	7 0 0 7 10 0	Tees	6 10 0 .. ....
" Stafford in Lond.	7 10 0 8 10 0	To arrive	10 5 0 .. ....
Bars	7 10 0 9 10 0	Pig, No. 1, in Clyde	2 15 3 3 2 0
Hoop	8 10 0 9 12 6	Do. f.o.b. Tyne, Tees	2 9 6 .. ....
Sheets, single	9 5 0 10 0 0	Do. Nos 3, 4, f.o.b. do	2 6 6 2 7 0
Fig. No. 1, in Wales	3 15 0 4 5 0	Railway chairs	5 10 0 5 15 0
Refined metal, ditto	4 0 0 5 0 0	" spikes	11 0 0 12 0 0
Bars, common, ditto	5 15 0 6 0 0	Indian Charcoal Pigs	
Do. Swd. in London	10 5 0 —	in London	7 0 0 7 10 0

THE COAL TRADE.

NEW YORK, Oct. 18, 1867.

Domestic.—The market this week has undergone little or no change, bearing about the same perceptible aspect. Prices remain stiff, without manifesting any disposition to fall. Not much has been done in the larger sizes, but the smaller one is in good demand. Consumers seem anxious for English Coal, and the business, in consequence, has been very lively. There have been no sales in Provincial Coal, as the season is now over. Except for Foreign, we have no change to note this week in our quotations.

The following Table shows the quantity of Coal shipped over the principal roads for the week ending Oct. 12th, 1867, compared with that shipped the same time last year.

	1866.		1867.		
	WEEK.	TOTAL.	WEEK.	TOTAL.	DECREASE.
Phil. & Reading R.R	58,900	3,028,435	81,052	2,655,259	373,176
Schuylkill Canal	227,304	1,069,654	52,150	796,141	273,493
Lehigh Val. R. R	26,320	1,495,743	40,700	1,608,857	113,114
Lehigh Canal	29,760	835,580	65,120	769,148	66,552
Del & Hudson	29,512	1,070,940	39,556	1,078,450	7,510
Union Coal Co. Rail	15	718	55	7,707	6,989
" " " Canal	471	1,749	2,646	23,871	22,122
Scranton North	8,557	354,719	14,599	365,773	31,054
Scranton South	21,619	839,708	22,552	993,509	153,801
Penn'a Coal Co. Rail	19,832	633,607	18,699	649,647	316,098
" " " Canal	709	20,517	949	18,331	2,186
Wyoming North	.....	87,721	.....	35,193	52,528
Wyoming South	11,076	383,158	14,278	274,309	108,829
Shamokin	7,436	447,213	.....	342,944	.....
Trevorton	940	43,216	1,387	41,525	1,691
Short Mountain	2,703	78,468	3,031	56,259	22,208
L. V. Co	.....	.....	.....	.....	.....
Broad Top	3,922	216,241	4,916	184,620	31,591
Williamsto'n	.....	51,229	4,210	93,161	41,941
Total	242,939	10,338,667	316,186	9,994,755	.....
1867	.....	9,994,755	.....	.....	.....
Decrease	.....	343,912	.....	.....	.....

Lehigh and Mahanoy Coal Trade,

For week ending Oct. 12, 1867.

NAMES OF SHIPPERS.	WEEK	TOTAL.
Trenton Coal Co	.....	1,794 02
Mount Etna	356 08	2,916 01
Mahanoy Coal Co	499 01	11,203 10
Delano Colliery	.....	25,061 02
Glendon Coal Co	312 05	13,733 07
Rathburn, Stearns & Co	.....	25,431 01
E. S. Silliman	1,235 08	86,673 06
McNeal Coal & Iron Co	1,906 11	81,810 11
Knickerbocker Coal Co	962 15	44,551 03
Thomas Coal Co	923 14	27,666 16
Williams & Herring	184 07	10,062 18
Shamokin Valley Coal Co	.....	4,202 08
New Boston	1,129 03	21,745 16
Caledonia	292 18	371 09
Other shippers	.....	36 17
Total	7,883 10	360,630 11
Corresponding week last year	1,970 04	273,046 09
Increase	5,885 06	87,584 02
Decrease	.....	.....

Lehigh Coal Trade.

SHIPPED FOR THE WEEK ENDING OCTOBER 12, 1867.

SHIPPERS.	CANAL. Week. Tons.	CANAL. Total. Tons.	RAILROAD Week Tons.	RAILROAD Total Tons.
FROM MAUCH CHUNK.				
Lehigh Coal & Navigation Co	.....	.....	.....	.....
Summit Mines	14,466	278,973	.....	.....
Room Run Mines	.....	1,313	.....	.....
John Lauback & Co	.....	352	.....	.....
Other Shippers	.....	.....	.....	.....
Total	14,466	280,641	.....	.....
FROM B. M. REGION.				
John Connery	.....	.....	.....	1,534
W. T. Carter & Co. (Coleraine)	190	10,508	1,213	71,329
Spring Mountain Coal Co	482	5 047	2,265	109,689
Thomas Hud & Co. (N. Y. & Lehigh Co)	939	9,949	1,324	81 832
Honey Brook Coal Co	1,530	32,158	2,979	110,674
German Pennsylvania Coal Co	427	7,852	704	80,949
Beaver Meadow (D. W.)	.....	.....	54	1,507
Other Shippers	.....	.....	6	175
Total	3,570	65,517	9,548	467,690
FROM MAHANOY REGION.				
McNeal Coal and Iron Co	151	4,277	1,820	77,777
Knickerbocker Anthr. Coal Co	.....	1,494	962	42 838
North Mahany Mines (Mahanoy Col. now R. & C.)	64	889	490	11,158
Delano do	.....	1,140	.....	35,872
Primrose Mines (Rathbun, Stearns & Co.)	.....	.....	.....	25,625
Walter, Brothers & Co. (now Bedford & Cox)	.....	82	.....	.....
Mount Etna Coal Co	262	1 474	122	1 321
Trenton Coal Co	.....	184	.....	1,609
Glendon Coal Co. (Glendon Colliery)	.....	58	312	13,714
Thomas Coal Co	172	1,584	761	28,782
Williams & Herring	.....	189	184	9,885
E. S Silliman	.....	.....	1,727	85,707
East Boston	.....	.....	.....	705
New Boston Coal Co	.....	.....	1 129	21 685
Shamokin Coal Co	.....	.....	.....	4,202
Other Shippers	.....	.....	292	488
Total	656	11 412	7,813	356,155
FROM HAZLETON REGION.				
A. Pardee & Co. (Hazleton)	2 235	60 346	3 539	110,142
G. B. Markle & Co. (Jeddo)	1,274	42,882	2 427	96 981
Wm. S. Halsey & Co. (Mt. Pleasant)	251	3,817	249	8,235
Buck Mountain Coal Co	1,085	33,860	1,627	44,736
Sharpe, Weiss & Co. (Council Ridge)	1,223	27,369	1,688	61,123
Coxe, Brothers & Co. (Cross Creek)	380	9,469	580	15,229
Ebervale Coal Co	953	29,313	1,032	52,798
Stout Coal Co	519	17,312	487	25,842
Harleigh Coal Co	933	17,906	1,133	32 695
Ashburton Coal Co	.....	1,582	.....	432
East Sugar Loaf	.....	.....	3 634	113,952
Upper Lehigh C. Co	640	11,506	1,581	41,735
Highland	1,091	12,407	915	16,324
Mount Hall	.....	88	.....	845
Other Shippers	65	386	363	2,374
Total	10 985	267,368	19,260	623,071

FROM WYOMING REGION.				
Newport Coal Co	....	3,533	....	783
Warrior Run Mining Co	....	2,956	276	9,486
Parish & Thomas	567	10,115	986	34,954
New Jersey Coal Co	198	6,564	221	13,456
Lehigh & Susquehanna Coal Co	....	2,933	....	11,245
Germania Coal Co	280	6,044	233	11,730
Franklin Coal Co	....	5,507	....	8,763
Audenried Impr'v't & Coal Co	449	6,732	....	7,750
Valley Coal Co	....	189	....	384
Wilkes Barre Coal and Iron Co	3,251	65,036	149	59,072
Baltimore Coal Co	188	14,373	103	30,156
Union Coal Co	....	5,323	53	7,707
Wyoming Coal & Transp'n Co	95	6,989	67	17,414
Everhart Coal Co	....	2,618	....	1,904
Morris & Essex Mutual	....	....	33	6,729
H. B. Hillman & Co	....	....	....	6,916
Bowkley, Price & Co	....	....	....	1,745
T. F. Hunt & Co	....	....	....	774
John Horton	....	246	....	....
Mineral Springs	....	....	....	4,301
Consumers	....	....	158	266
Plymouth Coal Co	....	....	1,390	1,513
Enterprise Colliery, J. H. Swoyer	....	....	236	731
Washington Coal Co	....	....	170	408
West Pittston	....	....	50	50
Other Shippers	417	9,326	....	....
Total	5,440	148,531	4,132	229,647
Grand Total	35,120	774,471	40,755	1,616,564
Total 1866	29,769	835,680	26,320	1,495,743
Decrease	....	61,209	....	....
Increase	5,351	....	14,431	120,820

Schuylkill Coal Trade.

BY RAILROAD & CANAL, FOR WEEK ENDING OCT. 17, 1867.

	Railroad.	Canal.
St. Clair	89,049	.....
Port Carbon	8,711	.....
Pottsville	1,021	.....
Schuylkill Haven	22,400	.....
Auburn	5,615	.....
Port Clinton	6,556	.....
Total for week	81,352	32,130
Previously this year	2,573,807	764,011
Total	2,655,259	796,141

Cumberland Coal Trade.

For the week ending Oct. 12, 1867.
From the Alleganian.

COAL TRADE BY RAILROAD.—Statement of Coal shipments over the Baltimore and Ohio Railroad for the week ending Oct. 12, 1867:

From C. and P. R. R.	Tons.
American Company	1,669 07
Consolidation	2,808 12
Borden	797 16
New Hope	32 13
Midland	129 14
Hampshire	.....
From Eckart R. R.	Tons.
C. C. and I. C.	697 14
Spruce Hill	.....
Black Avon	.....
Total	6,126 16
From George's Creek via Piedmont.	Tons.
George's C. & I. Company	1,741 16
Central do	2,367 10
Atlantic do	682 11
Piedmont do	484 03
Swanton do	1,118 05
Barton do	1,593 05
Potomac do	1,416 07
George's C. M do	417 07
Franklin do	524 00
Hampshire do	657 18
Total	11,003 02

BY C. & O. CANAL.—There were dispatched from the port of Cumberland, during the last week, boats laden with 14 401 08 tons of coal, forwarded by the following companies

American	3,370 12
Borden	884 10
Central	2,884 05
Consolidation	2,464 16
Cumb. Coal & I.	3,127 04
Hampshire & Baltimore	870 11
Total	14,401 08

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

At New York, October 18, 1867.

Schuylkill R. A., choice	$5 75@$6 00		Lehigh Broken	5 12	....
" Ordinary	5 25	5 50	" Egg	5 12	....
" W. A. Lump	5 25	5 50	" Stove	5 20	....
" Steamboat	5 25	5 50	" Chestnut	4 20	....
" Broken	5 25	5 50	Wilkesbarre Lump	5 25	....
" Egg	5 25	5 50	" B'ken & Egg	5 25	....
" Stove	5 25	5 50	" Stove	5 50	....
" Chestnut	4 00	4 25	" Chestnut	4 75	....
Lehigh White Ash Lump	5 37	....			

SPECIAL COALS.—DEALERS' QUOTATIONS.

Diam'd Vein R. A., Sch'kill	....	New England Red Ash	$5 25 ....
Locust Dale W. A. "	....	Broad Mountain	5 25 ....
Honey Brook " Lehigh	5 50	Wyoming	5 00 ....
Harleigh " "	5 50	McNeal Co	5 50 ....
Spring M'n " "	5 50	George's Creek (Balt.)	5 25 ....
Sugar Creek " "	5 50	" " (Georget'n)	4 75 ....
Ashburton " "	5 50	Locust Mount'n (Repplier)	5 50 ....
Fulton White Ash	5 50	Duncan Red Ash "	6 00 ....
Stout	5 50	W'barre Coal & Iron Co.	5 25 ....
Old Co's " "	5 50	New Burgh Orrell Gas Coal	9 00 ....
Buck Ridge W. A., Sh'kin	5 00	Despard Gas Coal	9 00 ....
H. Heils, E. S'klin, Lorb.	5 50		

Dealers in these Coals may be found in our advertising columns.

At Philadelphia, October 18, 1867.

Lehigh Lump and St'mb't	$5 00@....		Schuylkill Chestnut	2 75	....
" Broken and Egg	5 00	....	Locust Mount Lump and Steamboat	4 25	....
" Stove	5 00	....	" Broken	4 25	....
" Chestnut	3 75	....	" Prepared	4 25	....
Schuylkill R. A. Prepared	4 25	4 50	" Chestnut	2 87	....
" Chestnut	2 75	....	Lorberry Coal	4 25	....
" W. A. Lump and Steamboat	4 25	....	Shamokin	4 75	....
" Broken	4 25	....	Franklin, (Lykens Valley)	4 75	....
" Egg and Stove	4 25	..	Broad Top	4 75	....

Scranton Coal at Elizabethport, October 18, 1867.

(Corrected weekly by D. L. & W. R. R. Co.)

Lump	$4 25@....		Egg	4 75	....
Steamer	4 40	....	Stove	5 00	....
Grate	4 40	....	Chestnut	4 40	....

Prices for Pittston Coal at Newburgh, October 18, 1867.

(Corrected weekly by Penna. Coal Co.)

Lump, per ton of 2240 lbs	$4 70@....		Egg " " "	4 70	....
Steamer, " " "	4 70	....	Stove " " "	4 90	....
Grate " " "	4 70	....	Chestnut " " "	4 20	....

70 cents additional to New York.

Lackawanna at Rondout, October 18, 1867.

(Average contract prices for year.)

Lump	$5 00@....	Stove	5 00@....
Steamer	4 55@....	Chestnut	4 60@....
Grate	5 00@....	Pea	4 00@....
Egg	5 00@....		

Lehigh Coal at Elizabethport, October 18, 1867.

Lump	5 50@....	Chestnut	4 50 ....
Steamboat and Broken	5 25	Stove	5 50 ....
Egg	5 25		

At Baltimore, October 18, 1867.

Wilkesbarre & Pittston W. A. by cargo or car	$5 25@5 50	From wharf or yard, 75c. to $1 per ton additional.	
Lykens Valley R. A. by cargo or car	5 50@ 5 80	Retail, del'd, per 2,240 lbs	7 00@7 50
Sunbury & Shamokin R. or W. A. by cargo	5 00 5 35	George's C'k and Cumberland f. o. b. at Locust P't	5 00@....

At Havre de Grace, Md.

Wilkesbarre or Pittston, W. A., on board	$4 85@5 10	Sunbury or Shamokin, R. or W. A., on board	5 00@5 10
		Lykens V'y, R. A. on b'd.	5 10@5 25

At Georgetown, D. C.

George's Creek and Cumberland, on board ..... $4 25@ 4 50

Wilkesbarre Coal at Elizabethport, October 18, 1867.

(Corrected by Wilkesbarre Coal & Iron Co.)

Lump	$4 50	....	Egg	4 75	....
Steamer	4 50	....	Stove	5 00	....
Broken	4 75	....	Chestnut	4 50	....

Ten cents additional on shipments from Jersey City.

Prices of Provincial Coals.

[CORRECTED WEEKLY BY LOUIS J. BELLONI, JR., 43 PINE STREET.]

Duty $1.25 per ton.

Block House (on board)	$2 00 gold	Little Glace Bay "	1 87½ "
Gowrie "	1 75 "	International Co.'s "	1 75 "
Lingan "	1 75 "	Slack Coal, B. H., "	75 "
Sydney "	2 25 "	" L. G. B., "	1 00 "
Pictou "	2 25 "		

Prices of Foreign Coals.

Duty $1.25 per ton.

Corrected weekly by PARMELEE BROS., 32 Pine Street, N. Y.

Liverpool Gas Caking	$10 00	Liverpool House Orrel	19 00@20 00
" " Cannel	13 50	" " "	16 00@18 00

Per ton 2240 lbs., Ex. ship.

PRICES FROM YARD

Liverpool Orrel, screened	$18@20	Liverpool Cannel, scr'd	20 00@22 00

per ton 2000 lbs. delivered.

Coal Freights.

(Corrected Weekly.)

From Newburgh.

RIVER. Co.'s Boats.		EASTERN.	
Albany	50@....	Boston	1 00@....
Barrytown	35	Bridgeport	1 12½....
Catskill	35	Bristol	1 50 ....
Cold Spring	50	Dighton	1 50 ....
Coeymans	45	Fall River	1 45 ....
Coxsackie	40	Mystic	1 50 ....
Fishkill Landing	20	New Haven	1 12½....
Greenbush	50	New London	1 25 ....
Haverstraw	45	Newport	1 45 ....
Hudson	35	Norwalk	1 12½....
New York	70	Norwich	1 40 ....
Nyack	50	Pawtucket	1 65 ....
Peekskill	40	Providence	1 50 ....
Poughkeepsie	25	Stamford	1 12½....
Rhinebeck	30	Stonington	1 25 ....
Saugerties	35	Warren	1 45 ....
Sing Sing	50		
Stuyvesant	40		
Tarrytown	50		
Troy	55		
West Point	30		
West Troy	55		
Yonkers	55		

From Rondout.

Boston	$1 75	New London	1 40
Bridgeport	1 25	Newport	1 50
Bristol	1 55	Norwalk	1 25
Dighton	1 55	Pawtucket	1 70
Fall River	1 50	Providence	1 55
Mystic	1 40	Stamford	1 25
New Haven	1 25	Stonington	1 35
Norwich	1 50		

From Elizabethport.

Albany	$ 90@— —	New London	1 25@— —
Boston	1 60 — —	Newport	1 40 — —
Bridgeport	1 00 — —	New York	55 60
Fall River	1 40 — —	Norwalk	1 00 — —
Hartford	1 50 — —	Norwich	1 30 — —
Hudson	1 00 — —	Pawtucket and towing	1 50 — —
Lynn	— — — —	Portland	1 60 — —
Middletown	1 25 — —	Portsmouth	2 15 — —
New Bedford	1 45 — —	Providence	1 40 — —
Newburyport	2 00 — —	Salem	1 80 — —
New Haven	1 00 — —	Taunton	1 40 — —

From Washington, N. J.

Hackettstown	$ 58	Iron Dale	$ 1 19
Waterloo	81	Dover	1 24
Stanhope	90	Paterson	1 75
Port Morris	99	Pompton	1 75
Rockaway	1 32	Bloomfield	1 85
Denville	1 33	Newark	1 90
Boonton	1 44	Belleville	2 00
Little Falls	1 70	Communipaw	2 90
Drakesville	1 08	Jersey City	2 10
Dickerson's Basin	1 11	New York	2 10

From Port Richmond, Philadelphia.

Amesbury Point	2 42½— —	Nepensett	2 10 — —
Boston	2 10 2 25	New Orleans	4 50 — —
" bridges	03 — —	Nantucket	2 20 — —
Beverly	2 10 — —	New York	1 30 — —
Cambridgeport	2 40 — —	New Bedford	1 75 — —
Charlestown	2 00 — —	Newport	1 75 — —
Davenport	2 25 — —	Portland	2 10 — —
East Cambridge	2 00 — —	Providence	1 75 — —
" bridges	03 — —	Pawtucket	1 75 — —
Fall River	1 75 — —	Portsmouth	2 10 2 20
Gardner	2 25 — —	Quincy Point	2 05 — —
Hartford	2 30 — —	Salem	2 15 — —
Hingham	2 25 — —	Salisbury	2 50 — —
Lynn and dis	2 25 — —	Washington	1 00 1 10
Newberryport	2 15 — —		

From Baltimore.

To Philadelphia	$1 40@— —	Boston	2 25@ 2 50
New York	2 10 — —	Sound Ports	2 25@ 2 50
Washington	1 10 — —	Norfolk	1 00@— —
Annapolis	75 — —	Richmond	1 30@— —

From Georgetown or Alexandria.

To Philadelphia	$1 50 — —	Boston	2 75 2 50
New York	2 15 — —	Sound Ports	2 25 2 50

Provincial Freights.

	Currency.
Sydney to N. Y.	$2 75
Sydney to Boston	2 75
Lingan	3 50
Lingan to Boston	3 00
Cow Bay	2 75
Cow Bay to Boston	2 75
Cow Bay to Portland	2 50
Big Glace Bay	3 87
Little "	2 75

Foreign Freights.

New Castle and Ports on Tyne	£17@ keel.
Liverpool	18s. @17s 6d

Rates of Transportation to Tide Water, June 1, 1867.

PHILADELPHIA & READING RAILROAD.

From Pottsville to Philadelphia	$2 17
" " Port Richmond	2 07
" " New York, drawback off	2 80

SCHUYLKILL NAVIGATION.

From Pottsville to Philadelphia	2 08
" " New York, drawback off	2 88

Wyoming Valley Canal.

	Tolls.	Freights.
From Wilkesbarre to Havre de Grace	97c.	$1 55
" " Columbia	69	1 20
" " Middletown	67	1 10
" " Harrisburg	61⅞	1 05

OTHER AVENUES.

From Mauch Chunk to Philadelphia, Canal, including unloading		1 88
" " Philadelphia, via North Penna Railroad		2 00
" " Elizabethport, via N. J. Central Railroad		2 03
" " Port Johnson		2 10
" " New York		2 47
" " New York via Del. Div. and Raritan Canal, including unloading		2 67
" " New York via Morris Canal		2 39
" " Hoboken via Morris & Essex Railroad		2 10
" " New York		2 20
From Elizabethport to Buffalo, via New York Canal, a distance of about 459 miles—freight, $2 62, toll 78 cents		3 40

The shipping expenses at Elizabethport and Port Johnson vary from 25 to 30 cents.

The Lehigh and Susquehanna Railroad company has stretched a wire from Mauch Chunk, which runs into the Union Telegraph office in that place. They are extending it to Providence, and from Mauch Chunk to Easton. The Western Union company is building a wire to Scranton to connect there with a through wire, making direct communication with New York. The Lehigh Valley Railroad is extending its wire northward along the road.

The Mineral Spring Coal company offer, in another portion of this paper, facilities for shipping some good coal at their new pier 9, Elizabethport. To Lehigh operators, for stocking, it is quite advantageous.

BOSTON STOCK MARKET.

(By Telegraph.)

Prices of mining stocks bid this day were as follows:

BOSTON, October 17, 1867.

Allouez	3	Huron	—
Calumet	35	Isle Royal	—
Hecla	—	Minnesota	4
Canada	—	Quincy	22½
Copper Falls	26⅞	Cary Improvement	7¾
Franklin	16	Rockland	—
Hancock	—	Boston Water Power	17½

Sales at Boston Stock Exchange, October 16.

250 shares	Water P'r	s.30	18	100 shares	Franklin	16
300 "	Allouez		3¼	50 "	"	17
50 "	Concord		3¾	100 "	Hancock	11½
50 "	Copper Falls	b.30	27¼	1150 "	"	11
50 "	"		27⅝	100 "	"	b.20 11⅛
100 "	Franklin		16½	200 "	"	11⅛

Iron Items

The mines in the Lake Superior region seem to be in a most encouraging state. The Holyoke mine continues to improve. During the past week a large amount of mineral has been taken from one of the new shafts, and it grows heavier and richer as it goes down. Specimens sent in within the last two or three days, show heavy lead with quartz and some sulphuret of copper—of the same character as in the drift west of No. 2 shaft, affording the strongest evidence that it is all one and the same vein. The adit level is now driven in nearly 530 feet. A small smelting furnace will be erected immediately, and the officers feel confident that the mine can be readily made to pay expenses. The developments at the iron ore deposit on section 31, township 48, range 29, near the Champion Furnace, are highly encouraging. The vein has been traced with a good degree of continuity for half a mile west of the first openings, and test pits at that distance show a perfectly pure and beautiful ore under, from 8 to 12 feet of surface. The average width of the vein is 60 feet. There will be an excellent opportunity to conduct mining operations along a deposit so extensive, and as large and productive a mine as any in the district will undoubtedly be developed at this locality in due time. The future capacity of production of this location and of the Washington mine will be very great. Some close observers predict that the magnetic range on which these mines are situated is destined to become more important and productive than the range occupied by the older mines in town 47, range 27.

An English cotemporary says of railway iron: "The value of the railway iron exported in the ten years ending 1866 was as follows—1857, £4,000,515; 1858, £3,565,224; 1859, £4,124,208; 1860, £3,408,759; 1861, £2,906,359, 1862, £3,817,877; 1863, £3,278,304; 1864, £3,305,086; 1865, £3,550,563; and 1866, £4,166,419. The quantities represented by these sums were as annexed: 1857, 457,660 tons; 1858, 433,250 tons; 1859, 528,927 tons; 1860, 453,445 tons; 1861, 377,565 tons; 1862, 400,765 tons; 1863, 446,440 tons; 1864, 408,215 tons; 1865, 434,300 tons; and 1866, 498,595 tons. It will be seen that the value of the railway iron exported in 1866 was larger than in any former year; the quantity was, however, somewhat below the mark of 1859. The exports were largely increased all through the decade by the demand on account of the Indian guaranteed railways, and last year they were still further augmented by the demand on American account. It cannot be said, however, that this branch of the export iron trade is making much progress. The total exports to July 31 this year amounted to 318,028 tons, as compared with 312,732 tons in the corresponding seven months of 1866, and 224,102 tons in the corresponding seven months of 1865.

An examination at the "Iron Masters' Laboratory," Philadelphia, of one hundred samples of limestone obtained from works in various parts of the country, was proposed and made some time since. The object was to ascertain mainly what quality of stone gives the best average results as flux in blast furnaces, and thus furnish a standard for practical purposes. Only thirty-five, however, out of the whole number sent could be taken "as a fair average of the kind found by actual use the best adapted for furnace purposes." The results of them as found, upon careful analysis, are as follows:

Water	.49
Siliceous matter	4.03
Oxide of iron and alumina	2.40
Carbonate of lime	46.89
Carbonate of magnesia	5.36
Solid carbonaceous matter	.09
Manganese	trace.
Loss	.74

THE NEW FURNACE near Edge Hill, on the North Pennsylvania Railroad, has been commenced. Among the iron ore discoveries recently made near its site, was one on a small tract of eight or ten acres, the sale of which was first negotiated on a basis of about $125 per acre. The owners were an aged couple, and the wife interposed a claim for a silk dress, which caused an estoppel to the proceedings. Meanwhile, however, the discovery of ore upon the tract was noised about, and new bids were made for the land; finally, offer-makers becoming importunate, the old lady, admonished by the competition for the land, resolved on a public sale of it, when it was knocked down for ten thousand dollars! On further exploration it was found to contain a most valuable deposit of ore, and it is held by its present owners to be worth more than a quarter million of dollars.

The Iron mines at Marmora, in Canada, which were recently opened, are yielding large quantities of ore. It is only three weeks since shipments commenced, and already six thousand tons of ore have been shipped from Coburg to Cleveland or Erie—mostly to the latter port. The company are now shipping over three hundred tons per day.

The amount of black-band iron ore shipped over the Mill Creek Railroad for the week ending Oct. 5, 1867, was 21 10 tons; previously, 3,519 14 tons. Total, 3 532 04 tons.

The *Oregonian* says: "It is said that the St. Helen mine has passed into the hands of W. S. Ladd, Esq., of Portland, and Col. Hayward, of San Francisco."

New Italian Coal.

A correspondent writing from Naples says:—"At the request of the American consul, Professor C. Cassola, who had instituted a search for petroleum springs in the south of Italy, has published a short but interesting account of the progress which he has made. 'Two springs have been brought to light in the immediate neighborhood of Isoletta, on the line of railway between Naples and Rome. 'We are at the upper deposits,' writes the professor, 'and are working down to the springs.' But M. Cassola has made a far more important discovery than this, if he be not the victim of a delusion. He claims to have resolved the great fuel question for Italy, thus removing the principal, or rather the only obstacle to the development of industrial enterprise in this country. The Italian soil, M. Cassola observes, is extraordinarily rich in hydrocarbons of various kinds, such as bitumens, asphalts, petroleums, napthas, pitch, bituminous schists, and particularly in carbo-bitumens, a substance which he describes as similar to ordinary coal, but as evolving a much greater heat, for while he calculated the heat producing power of Newcastle coal at 7,400, the substance discovered by him, when subjected to various processes, of which he claims to have the secret, will generate, he says, more than double this amount of heat. I have the full responsibility of these statements of the Neapolitan chemist; time alone can show whether they rest upon any solid foundation."

Smelting in New Mexico.

The process for the reduction of the ores from the Calzada mine, New Mexico, is smelting, or liquifying by heat, and this is effected by intermixing charcoal with the ore and making them burn together in the furnace under a strong blast. The blast is given by a large bellows, or, what is better, a McKenzie blower, and the furnace is built tall and narrow, like the common blast furnace. Though the greater part of the ore can very well be smelted in the reverberatory furnace, the cupola or blast furnace is necessary for the reduction of the rebellious or refractory ores as well as the slags from reverberatory. The expenses of dressing and smelting these ores amount to about twelve dollars per ton, and the total expenses of both mining and smelting to about 20 dollars. The wages of laborers are much lower in New Mexico than in California and Nevada, therefore thirty dollars would not be too much to estimate the cost of the same here. The ore of Calzada mine is an argentiferous galena of a blue-black color, but sometime greenish from the admixture of green carbonate of copper, and at others grayish from the predominance of sulpheret in silver.

AMERICAN

Journal of Mining.

WESTERN & COMPANY,
PROPRIETORS.

R. W. RAYMOND, EDITOR.

OFFICE, 37 PARK ROW, NEW YORK.

Published Every Saturday Noon.

TERMS OF SUBSCRIPTION:

$4 00 per annum, in advance.
$2 00 for six months.

Single copies Ten Cents
☞ Specimen copies sent free.

RATES OF ADVERTISING:

Fifteen cents per line of thirteen words for each insertion. Terms invariably in advance. A discount allowed to permanent advertisers.

DESIGNING, LITHOGRAPHING and WOOD ENGRAVING, and JOB PRINTING executed in elegant style, on reasonable terms.

SPECIAL AGENTS,

AUTHORIZED TO RECEIVE SUBSCRIPTIONS.

COLORADO.—GEO. TRITCH, Denver City.
CALIFORNIA.—W. E. LOOMIS, San Francisco.
PENNSYLVANIA.—T. B. CALLENDER, cor. 3rd and Walnut streets, Philadelphia.
ENGLAND.—FREDERICK ALGAR, 11 Clements Lane, Lombard street, London.
MEXICO.—JAMES SULLIVAN, City of Mexico.
CUBA.—THOS. W. WILSON, Havana.

DEALERS AGENTS.

THE AMERICAN NEWS COMPANY, 121 Nassau street, N. Y.
THE NEW YORK NEWS CO., 10 Spruce street, N. Y.

☞ Correspondents, exchanges and others addressing us should be *extremely careful* to write "JOURNAL OF MINING," instead of "MINING JOURNAL," to ensure the safe carriage. Communications intended for publication should be plainly written, and on one side of the paper only.

NEW YORK, SATURDAY, OCTOBER 19.

CONTENTS OF THIS NUMBER.

EDITORIALS.—Phillips on Gold and Silver—Transparency of Molten Metals—Gold Amalgamation—Safety Lamps—Manganese.
ORIGINAL PAPERS.—The Coal Deposits of Boulder County, Colorado, by A. Wallace, Mining Engineer and Metallurgist.
CORRESPONDENCE.—The Chemical Reactions involved in the mutual Decomposition of Steam and Hydro-Carbons; Letter from Mr. Stinners.
THE STEAMED MACHINERY.—Morey & Sperry's Ten-Stamp Battery.
MINING SUMMARY.—Gold and Silver: Colorado, Montana, Idaho, California, Nevada, Oregon—Coal and Iron: Michigan.
MISCELLANEOUS.—Mechanical Washing of Coal—Yield of Australian Mines—Bullion Product of Nevada—Mineral Resources of the Pacific.
NEW PUBLICATIONS.
SCIENTIFIC MEETINGS.
MINING COMPANY MEETINGS.—Dividends, Meetings, Assessments, Statements.
MARKET REVIEW.—Mining and Petroleum Stocks, Finances, Stocks Metals, etc.
THE SLATE TRADE.
THE IRON TRADE.
THE COAL TRADE.—Quotations, Shipments, Freights.
PATENT CLAIMS.
SPECIAL SCIENTIFIC BREVITIES.
ON-DIT ABOUT MINERALS.
ALL SORTS.

PHILLIPS ON GOLD AND SILVER.

MR. J. ARTHUR PHILLIPS, the well known English engineer, has recently published a work on the Mining and Metallurgy of Gold and Silver, which is intended to supply a deficiency long felt in technical literature. An examination of the work satisfies us in pronouncing it, on the whole, the best that has yet appeared upon this subject. In fact, what others can be named? KUSTEL's work is meagre and inaccurate; BRUNO KERL's and PERCY's chapters on the metallurgy of gold and silver, while they are more thorough and scientific, so far as they go, do not contain the mass of information collected by Mr. PHILLIPS; since they are only subordinate parts of large works. No other book with which we are acquainted, presents so good drawings of California machinery, or gives in one volume so many important facts. It is unfortunate, in view of the labor expended on this book, and the costly and elegant style in which it has been published, that it is not good enough to render further attempts in the same direction, for some years at least, unnecessary. Mr. PHILLIPS' book is largely a compilation from sources of very unequal authority; and these sources are not, in all cases, so clearly mentioned as to enable the reader to distinguish the chaff from the wheat. One or two instances in which this fault is prominent, will be given in the present article.

The author remarks in the Preface, with much good sense, that he believes our knowledge of chemical geology is not, as yet, sufficiently advanced to warrant an attempt to form a general theory of the formation of mineral veins. He might have added, that our knowledge *is* sufficiently advanced to warrant the opinion, that no one general theory will cover all the phenomena with which we are acquainted. Three important conclusions, however, he feels safe in drawing from recent observations and experience. The first is, that "the most productive gold-bearing rocks are by no means exclusively confined to the silurian period." This is proved by the fact that the gold rocks of California are not silurian at all, which overthrows the premature generalizations of MURCHISON. The second is, that "aqueous agencies have been, and still are, actively at work in the formation of mineral deposits." As this fact has been acknowledged for centuries, there is no danger in asserting it. Alluvial mineral deposits, for instance, are hardly matters of very recent observation; and we confess that we regard this "saying an undisputed thing in such a solemn way," as more worthy of Jack Bunsby, or a Katy-did, than a man of science. The third conclusion is indeed an important and a modern one; and we are glad to see it authoritatively announced by Mr. PHILLIPS. It is, "that gold ledges are not more liable than ordinary metalliferous veins to become impoverished in depth."

The chapter on the gold regions of the old world is brief but interesting. Very little is added, however, to the information given by PROF. WHITNEY, in his "*Metallic Wealth of the United States*"—a work which, itself a skilful compilation, to a large extent, seems to be accepted as an original authority by many writers, who are disinclined to emulate the diligence of its author. As fourteen years have passed since that work was published, one would naturally expect something new from a writer on the same subject. Nevertheless, we do not seriously complain of this part of Mr. PHILLIPS' book, since the gold fields of Europe, Asia and Africa, with the exception of the Ural mountains, are of so little importance that one scarcely cares to hear the latest news concerning them. In regard to the latter, MR. PHILLIPS gives nothing more than WHITNEY, except the item of total production from 1850 to 1860 (687,025 lbs. Troy.) The next chapter treats of the Atlantic gold fields of the United States; and here it is painfully evident that the author has confined himself closely to WHITNEY's book, and that, in his mind, the history of the gold industry in the southern States since 1853, is a blank. Passing to the gold fields of the Pacific coast, however, Mr. PHILLIPS adopts a very different style; and the reader feels at once that he has entered upon the *bona fide* part of his work. In fact, all that is said about gold in Europe, Asia, Africa, South America, and, we may add, Australia, is mere make-weight, to balance and complement the researches of real value which the author has made on the Pacific coast. Yet even here, there are abundant evidences of the limited field of his observations, and his ignorance of recent publications. We are told, for instance, of Idaho and Montana, nothing more than his: that "the production of gold from these northern countries, has been for several years considerable, and is steadily and rapidly increasing: but the whole amount of the precious metal hitherto received from these regions, has been exclusively obtained from river diggings and other very shallow sources. It is not, however, probable, that, for a very long period at least, these countries will at all approximate in their yield to the annual produce of California," etc., etc. Idaho and Montana produced in 1866, about one-third of the gold of the entire Pacific mining region; and a large portion of this yield was from quartz-mining. We say nothing of such silver mines as the Poorman, of Idaho, from which $600,000 was extracted in less than ninety days. In a word, Mr. PHILLIPS did not go to Idaho, and has not any trustworthy knowledge of the country. The more the pity that he should forget his usual caution, and indulge in an opinion. The descriptive chapters on gold-washing and vein-mining in California and Australia, are admirable. A notice of sodium amalgam, incorporated (without any apparent reason) in a chapter on vein-mining in Brazil, implies that because it was not in general use in Dec., 1866, it cannot possess all the advantages claimed. The author, apparently, forgets that the inventor of sodium amalgam never supplied the mills of California, and that almost all the sodium amalgam used in that State was unskilfully made and unskilfully handled. In spite of this, however, it is a fact that the new amalgam is largely used in California, and, according to high authority, with good results; only, as the miners did not care to be prosecuted for infringing the patent, they chose not to tell Mr. PHILLIPS all about it. The chapter on assaying auriferous ores, like all the metallurgical chapters, is intelligently written, and excellent as a popular description; but not intended as a manual for the student. This ends that part of the book devoted to gold.

The second part, treating of the mining and metallurgy of silver, has the same faults, but more decided excellences. The principal silver mines of the old world, are mentioned very briefly; and perhaps this is the most lamentable instance of indolent compilation to be found in the whole book. What shall be said of an author who remarks: "The most productive silver mines of the Hartz are those in the neighborhood of Andreasberg" (?) It is several years since the Andreasberg mines were exhausted. The government of Hanover did everything in its power to avert the catastrophe; but in vain. Mr. PHILLIPS will scarcely be able, with a paragraph, to restore prosperity to an abandoned enterprise.

The accounts of American silver mining districts are more satisfactory, though not by any means exhaustive; and the descriptions of different processes for the treatment of silver ores are excellent. They take up a large portion of the book: and we do not grudge them the space.

To sum up: the title of this book is far too ambitious. As an original contribution to science, it has little or no value; as a compilation of the observations of others, it is valuable, but very incomplete. Mr. PHILLIPS' radical fault is his failure to consult the immense mass of authentic information, especially relating to the mining of gold and silver, which has accumulated within the last ten years. The files of American and German scientific journals alone would have furnished him with statistics and descriptions much more modern and trustworthy than those he has hastily adopted. A book as thorough and complete for 1867, as was that of WHITNEY for 1853 (to set no higher standard) would indeed supply a great want in technical literature. Such a book would require several years of research and study, while works like the one under consideration may be put together in a few weeks; and the eminence of their editors will never secure them a permanent position with the standard literature of science. Mr. PHILLIPS' book is the best we now have; but the next one, whoever writes it, can scarcely fail to be better, since it will contain the useful part of this, and more besides. He who gleans after Mr. PHILLIPS will find the leavings richer than the harvest. The volume is very handsome and very expensive; so that one is made to feel that he can as ill afford to buy it, as to go without it.

TRANSPARENCY OF MOLTEN METALS.

The assertion of SECCHI, a few months ago, regarding the transparency of heated iron, has given rise to much talk; but we have not yet seen it confirmed by the statement of any other competent eye-witness. Meanwhile, however, many assertions have been made as to the transparency of metals, when melted; and the evidence on this point begins to stagger the *savans*. It so happens, that, so far as we are aware, no professional chemist or educated physicist has yet testified to the phenomenon as actually observed by him. It is merely said, in various quarters, to be a fact, well known to the workmen employed in melting and moulding certain metals. We deem it, therefore, important to mention the first authentic endorsement which has come to our notice. M. PAUL MORIN, the accomplished chemist in charge of the Aluminium Bronze Works near Paris, asserts that the melted alloy, when poured into the mould, is transparent; and Mr. T. STERRY HUNT, to whom the assertion was made, and who saw the operation performed, assures us that the appearance of the molten stream seemed to corroborate the statement. There is a possibility of optical illusion in the inspection of a body which is itself intensely luminous, to discover whether it is transparent. We suggest that the question may be easily settled by the means employed to show the transparency of ordinary flame, namely, by burning magnesium, or in some other way producing a more brilliant light, behind it. The aluminium bronze is remarkable for two things, among other qualities, which distinguish it from ordinary alloys. One is the intense temperature developed by the union of the two metals, and the other is the extreme fluidity of the molten compound. Perhaps these qualities may be connected with the alleged phenomenon of transparency. Copper may also be transparent in the liquid state; but, in pouring it into moulds, it often oxidizes very rapidly, and the whole liquid mass is believed to be filled with disseminated particles of the red oxide of copper, which is opaque. Whether from this cause or not, we cannot say, but the evidence as to the transparency of molten copper, as likewise in the case of other metals, is still conflicting and inconclusive.

GOLD AMALGAMATION.

We clip from an English exchange the following:

"The value of sodium amalgam has been thoroughly tested in the Pacific States of America, and better results have been obtained with it there than in any other mining district, yet it is now found that it can be entirely dispensed with by the substitution of a well-known and much cheaper chemical compound—cyanide of potassium. It has always been considered that sodium amalgam owed its value to its power to attack and decompose the oxides of many of the metals, and it is now found that cyanide of potassium possesses the same property. It has been successfully used both on copper plates and in the pans. The plates are first cleaned with sand and nitric acid, and well washed in cold water. The surface is then swabbed over with the cyanide solution, and the mercury applied immediately, and rubbed on well; the plates will thus get a highly sensitive coating of mercury, which will seize upon the gold as it passes over them. In the pans the cyanide solution is applied with each charge of mercury, the proportion being varied to suit the ore operated upon."

The use of cyanide of potassium in the place of nitric acid, as a preparation for fixing amalgam on copper plates, was recommended in California some years ago, we believe: and has been revived periodically ever since. So far as actual results are known, it is inferior to nitric acid and sodium amalgam, both of which really produce an amalgamation of the copper to a perceptible depth, while other agents that have been used, including the cyanide of potassium, seem only to induce a film of amalgam on the surface. We forbear further discussion at present, as we hope to present our readers, before long, with a series of articles on the amalgamation of gold, from a distinguished chemist, in which these questions will be considered.

SAFETY-LAMPS.

Our readers will have noticed, from time to time, the reports of experiments made in England, with various safety-lamps, to determine the length of time during which they might remain in inflammable gas, without setting it on fire. The lamps tested comprised the *Davy*, the *Stephenson*, the *Morrison*, and other well-known apparatus. The *Stephenson* lamp, known as the "*Geordie*," is said to have stood the trial longest; but this is less important than the fact that sooner or later all the lamps exploded. On one occasion, several *Clanny* and other lamps, and afterwards a "*Geordie*," were subjected to a current of gas and air; and none of them bore the ordeal more than forty-seven seconds. It is believed that the artificial test applied was more severe than any that ordinarily occur in mines; but it is for extraordinary occasions that safety-lamps are designed; and it is vitally necessary to know how far their protection extends. The fact appears to have been forgotten tha these contrivances are rather warnings of danger than means of safety. In many cases where terrible explosions have taken place, it has been customary to suppose that some workman had carelessly opened his lamp, or entered the mine without properly closing it; and as the *suspected* culprits are also the victims, there has been no way to disprove this notion, which has tended greatly to confirm the belief that if safety-lamps are properly closed they cannot set fire to the surrounding gas. The truth is, the extent of safety afforded by any such invention is measured by the opportunity it give

the miner, on the first sign of danger, *instantly to extinguish his light*. This is a lesson that men do not learn by personal experience, because the experience kills them. The more reason that they should heed the cautions of Science, without waiting to hear them repeated in thunder from the lips of Death.

MANGANESE.

The market for manganese in this country is apparently steadily increasing. We are glad to note this fact, because, strange as it may seem to the unlearned, the consumption of the oxide of manganese in any country is an index to its progress in a most important department—that of chemical manufactures. There is no doubt that we possess on this continent a great abundance of the material; and some of a very superior quality. We have recently received for our mineral collection, from DR. LEWIS FEUCHTWANGER, a fine specimen of pure crystalline Pyrolusite (Peroxide of Manganese) from the Pinnacle Mine, in Pembroke, Hants Co., Nova Scotia. We understand that Dr. F. intends to work this mine with energy, and sell the product in English, Scotch, and American markets.

NEW PUBLICATIONS.

THE STATE OF ALABAMA. *Its Mineral, Agricultural, and Manufacturing Resources, embracing a Sketch of its early History and Progress. By* HIRAM HAINES, C. E. This pamphlet is one of those issued in Paris for free distribution by the commissioners of different States to the great exposition. Mr. HAINES, who was the commissioner of Alabama, modestly remarks, in the preface to this book, that he does not claim for it literary merit. He need not have taken the pains to disarm criticism by such an avowal, for his work possesses the highest literary merit—that of clear and simple style, appropriate arrangement, and an absence of that exaggerated and ridiculous eulogy, which is graphically called by Western men "blowing." A large portion of the work is compiled from the history of the late Colonel A. J. PICKETT and the geological reports of the late Professor Tuomey, and other sources, his indebtedness to which the author frankly acknowledges. The whole forms an exhibit of the resources of Alabama, well calculated to attract the attention of thinking men, and highly creditable to the State and its commissioner. As we have recently had occasion to note, the people of Alabama perhaps more than those of any other Southern State, are determined to recover themselves, and, with or without assistance from beyond their borders, to utilize the natural advantages of their noble territory. This course will most certainly secure for them that outside support which they may require. Capital, like Providence, "helps those who help themselves."

STATEMENTS.

THE UNION COPPER COMPANY operating in Ontonagon county, Mich., reports as follows for 1867: Amount of capital paid in, $139,375 00; invested in real estate, $1,050 94; in personal estate, $36,045 39; debts (as near as can be ascertained), $14,588 79; credits, in assessments uncollected, $10,625 00. No return of copper mined.

THE EUREKA COPPER MINING COMPANY operating in same county and State, returns: Amount of capital paid in, $35,000 00; invested in real estate, as near as can be ascertained, $30,752 39; in personal property, $1,140 47. No returns of debts, credits, or copper mined. We are in receipt of the following additional September copper products: Quincy mine—Stamp and Mass, 91 tons 1257 lbs; Grand Portage mine—Barrel and stamp work, 29 tons 154 lbs.. Portage Lake District—Total product, 373 tons 1868 lbs. The product of the Cliff mine for August was 80 tons 71 lbs. The product of the Copper Falls for September exceeded one hundred tons.

The Portage Lake *Mining Gazette* publishes some extracts from a letter written by a gentleman of reliability in Boston, which show that the debts of the company are about $750,000; of these 675,000 are held in the East, and $75,000 at the mine, or as near as may be. The writer says: "I may properly say that my interest is that of a creditor, anxious to realize all possible from the debt, and at the same time desire to do that which shall best promote the true interests of the mining region. Further than this, I have for some weeks been serving with two other gentlemen, large creditors, as trustees, striving to devise and carry through some arrangement which shall be for the interest of all concerned. The property of the company consists mainly, if not entirely, of the mine and its appurtenances, and these can only be made productive by being worked. Therefore, the trustees desire to see the mine placed in operation at the earliest moment. But it is very difficult to induce any number of creditors to look at any subject in the same light, especially in a case like this, where there are no assets to produce cash at once. Still, the trustees have spared no pains to induce the Eastern creditors to join in an agreement which practically puts the debt into the hands of these gentlemen, who can act for the creditors in such a manner as their best judgment may dictate. Of the Eastern creditors about five-sevenths have assented to a plan which practically wipes out the present shareholders, and divides the mine among the creditors pro rata. The balance of the creditors will probably assent if the creditors at the lake will do the same. The directors of the company are about calling a meeting of the shareholders to obtain authority to sell the mine, or in some other way provide the means to meet its debts. After all our discussions the trustees can see no way out of the difficulty, but by a division of the mine among the creditors pro rata. We will at once admit that under this course the labor debts will not be preferred, but if not preferred they will get their pro rata of the property, while if this course is not taken, such are the complications here that the mine will be forced into bankruptcy, in which case the attachments now on the property will be dissolved by due course of law, and a very small amount, if any of the creditors, be entitled to preference. Personally, I would be very glad to see the labor debt preferred, but this is a case where the facts are particularly stubborn. It is not a question of what we would do, but what we can do.

MEETINGS.

Wood & Wright Oil Creek company, at 66 South street, Oct. 31st, 1 P. M.; Cherry & Trout Run Oil and Mining company, at Philadelphia, Oct. 22d, 3 P. M.; Sunapee Mining company, at 92 State street, Boston, this day, 11 A. M.; Baltimore & Ohio Railroad company, at Baltimore, election of directors, Nov. 18th, beeween 10 and 1 o'clock.

DIVIDENDS.

Chollar-Potosi S. M. Company, $25 gold per share, on demand; Columbia Oil company, at Pittsburg, Pa., 3 per cent. on demand; Central Railroad of New Jersey, at 103 Liberty street, New York, quarterly, 2½ per cent., payable on the 21st inst.; Savage Silver Mining company, $150, gold, per lot, ($7 50 per share), payable on demand.

ASSESSMENTS.

Bay State Mining company, at 23 City Exchange, Boston, $2 per share, payable Oct, 24th by stockholders of record, Oct. 20.

Scientific Meetings.

POLYTECHNIC BRANCH OF THE AMERICAN INSTITUTE.

PLATINUM AND HYDROGEN—THE SOAP BUBBLE—KEROSENE LAMP—WARM STREET CARS—WHIP HOLDER—ANTI-SCALDING POT—NEW WAY OF PREPARING KINDLING WOOD—MODEL FOR VESSEL—BRICK MACHINE—DOUBLE-EXPANSION AND ROTARY ENGINES.

The regular weekly meeting of the Polytechnic Branch of the American Institute was held last Thursday evening, Professor TILLMAN in the chair. The attendance was very good, and much unusual interest evinced by all present.

A member took occasion from the reading of one of the scientific items, to make some remarks on the effect of a stream of hydrogen upon a clean plate of platinum. Dr. PARMERLEE was disposed to deny the fact that the plate would become red hot, and stated in confirmation of this opinion that, though he had tried the experiment, he had failed to obtain any such result. The first speaker, however, re asserted the fact, and on a friendly challenge being thrown out by Dr. PARMERLEE, offered on some future occasion to publicly test the truth of the assertion.

A member detailed the theory of the color of the soap-bubble, depending on the thickness of the film. Dr. PARMERLEE thought that the most interesting and important point in the consideration of the soap-bubble was the wonderful adhesiveness of the particles of the water, sufficient to permit the formation by distention of the bubble. In acceding to this, the former speaker said it could not be explained how the presence of saponaceous particles could give this cohesive power.

Mr. WILLARD exhibited a kerosene lamp in which the noxious smell coming from the wick when turned down was obviated by a simple contrivance. The flame is very wide but thin, and the light, which is very brilliant and larger than ordinary, may be instantaneously increased or diminished by pressing on a spring. The method of securing perfect combustion is somewhat novel, but very effective.

Mr. GIBSON explained a model for warming street cars. The car is warmed by a cast iron stove placed under the seat and near the centre, entirely out of the way, and which is adapted for coal or other fuel. The smoke escapes by a three-inch pipe extending underneath the seat and passing up through the roof in the corner. The grate is on a line with the floor, so that only the heating part of the stove is above the floor. The ash-pan is under the car, and is arranged with an air slide held by a pinch screw. The stove is fed through the top by lifting a lid in the seat of the car, which need be done only once in two hours. Passengers seated directly over the stove are protected from excessive heat by a double sheathing of metal, extending about three feet in front of, and over, the stove. All dust from ashes and danger from fire is avoided by the ash-pan being placed under the floor, the grate being shaken from the outside of the car. A feature of the invention is that the heat is given off at the point where it is most needed, near the floor; so that by keeping the feet warm, the passengers enjoy a comfortable ride. The design is very neat and satisfactory, the stove occupying no otherwise available room. This invention has been very successfully tried in Albany and Troy, and, we might add, is decidedly worthy of a trial here.

Mr. GIBSON also explained his patent whip-holder, "Anti-scalding Pot," and new method of preparing kindling wood. The whip-holder is a tapering stem made of malleable iron, ornamented or not, and having a foot or base of any form adapted to the different parts of a carriage or sleigh. The whip is made hollow in the handle, permitting it to sit on the stem. The whole of the whip is therefore made visible, instead of having the ornamental part hid as in the old socket. The advantages of this patent are very numerous, and will be readily apparent. The "Anti-scalding Pot" consists of a common pot with a lid, which can be readily fastened, and being partially perforated, admits the desired escape of any water, retaining the more solid matter therein contained. By the new way of preparing kindling wood the grain is thoroughly broken up, and so many sharp points presented that it becomes a very easy task to ignite any portion.

Mr. COLE showed the model of an improved form for a vessel. Prefacing his remarks with the assertion that men had not hitherto properly understood the properties of water, he proceeded briefly to explain his peculiar shape. It is of the usual wedge form, but the sides are on the plan of an inclined plane, by which he claimed that a vessel of that kind could make thirty-two miles an hour. The gentleman seemed confident of his future success, though the auditors did not participate to any encouraging extent in that feeling. The beneficial results of the model were doubted, and the predicted speed questioned.

MR. SEELEY explained the model of his brick machine. The character of the machine will appear from the advantages claimed for it, which are said to be numerous and striking. These advantages are: being a horizontal machine and much lower than any other, it is easily filled; capable of being run by horse or steam; making a larger number of superior brick; having the horses and sweep out of the way of the workmen; the grinding shaft turning around three times to one revolution of the team, thoroughly grinding the clay; admitting one end of the machine to be placed close to the clay bank; pressing the moulds full and retaining the pressure on the brick while the mould and brick are being forced out on the table; increasing or lessening the pressure by simply moving a pin; stopping the moulding without stopping the grinding; and, finally, being easily moved. This machine, which is in daily use, may also be used for the manufacture of peat. It makes from two thousand to three thousand brick per hour with seven or eight hands and a pair of horses; and with a small steam power it will manufacture from three thousand to five thousand per hour.

At a very late hour the regular subject of the evening, the engines at the Fair, was taken up.

Mr. REID submitted his theory of a "combination," or "double-expansion" engine, which he had exposed on some previous occasions. It elicited considerable discussion, though not of any definite character.

Mr. ORTLIEF began to explain by diagram his rotary engine. The antipathy of some of the gentlemen present to that form of an engine was very soon made manifest, and the discussion was growing quite excited when the hour for adjournment arrived, and put an end to further debate or possible explanation.

LYCEUM OF NATURAL HISTORY.

CHEMICAL HEAT—PROF. SEELEY'S NEW ELECTRO CHEMICAL THEORY.

At the regular meeting of the Lyceum of Natural History, held last Monday evening, Prof. CHARLES A. SEELEY, of New York, announced and explained his new theory of chemical heat equivalents and electricity. We are indebted to the New York *Times* for the following condensation of Prof. SEELEY'S paper:

It is impossible as yet to define physical force. In an absolute sense we cannot tell what or whence it is. Modern philosophy has pronounced the common type of all the so-called forces, before considered distinct, as modes of motion under diverse conditions, and has shown their convertibility into each other. Indorsing this, it has shown that they are not forces, but modified effects or phenomena of a mysterious force everywhere active in the material universe, and manifesting itself by turns in all the numberless forms of chemical affinity, electricity, heat, attraction or gravitation, &c., &c. With the four terms just named, the propositions to be advanced are concerned. When ordinary or mechanical motion terminates, we know that the force which caused it is not arrested, but is only diverted into a different mode of action, producing the motion we call heat; and the heat motion is just equivalent to the mechanical motion which was transformed into it. The hypothesis to be presented presupposes that chemical affinities are specific powers of attraction residing or stored in each substance, and causing in them motion relatively to each other. Employing the atomic theory as a means of illustration, we may say that the collision of atoms resulting from this mutual attraction, converts their motion into electro-motion, (if it is not just that originally,) and thence, or under different conditions, into heat motion; and the force of each motion is equivalent to that of each of its predecessors from which it was converted, and, when found, may be used as a measure of the combining proportions and heat-producing power, or, in general terms, the specific potency of each element. Now, the heat evolved in each of the principal chemical combinations is readily measured, and has been tabulated in works on chemistry from standard observations by ANDREWS and others. A simple algebraic formula resolves for us the heat-equivalent of each of the elements as involved in these combinations, and proves that instead of the equality of momentum which exists in two masses gravitating into collision, each element has its own specific force of chemical impact, as indicated by its peculiar and constant heat equivalent. These heat-equivalents, when actually determined by special experiments for the purpose, will be of vast importance. When hydrogen and chlorine unite in hydrochloric acid, their respective potencies are expended in collision, and go off in heat-equivalent to their sum, say 20,000. The two elements are then left inert, deprived in combination of their potency as elements, and capable of only being acted *on*, by some free element more potent than one of them, at least, had been. The apparent force of all acids and other combinations is simply of this kind—an inert susceptibility to an active agent. True, the decomposing action of the foreign element is commonly spoken of as *overcoming* the affinity or attraction of the hydrogen for the chlorine, for example. But if we assume that the latter attraction was expended in the act of combination, and that the elements are now kept together not by their force, but by their impotence, it follows that the condition of decomposition is that the new element expends its potency upon both, the one directly and the other indirectly—the motion it imparts to the chlorine being transformed at its termination, and going into the hydrogen so, far as to restore its proper latent potency, the excess only appearing in heat or other tangible form. In experiment, the actual manifestation of heat answers to this expectation. The proper evolution of heat in the formation of chloride of zinc would be say 2,400. The actual evolution in the battery, reckoning that employed in expanding the hydrogen to gaseous volume, is not greater than the excess of the heat given in forming chloride of zinc (2,400) over that originally lost from the constituents of hydrochloric acid, (2,000.) Now it is not very doubtful, at least, that this excess or surplus of heat is also the measure of the electricity derivable from the battery, and hence must be the same force, manifested in a different mode of motion according as it is taken off between the poles in electricity, or allowed to go off at one of them in heat. For, by tapping the connecting wire between the poles with a conductor, we stop the perceptible evolution of heat entirely, and it will probably be found on investigation, that the gaseous expansion of the hydrogen is then effected at the expense of the temperature of the elements of the battery and the contiguous atmosphere. To meet the observed conditions and the inferred distribution of the potency of zinc, the hypothesis of the action of the battery may be stated as follows: When pure zinc is exposed to hydrochloric acid no reaction is effected. Its attraction for the chlorine seems to be insufficient until indirectly reinforced by the slight attraction of platinum for the hydrogen. Immerse in the solution a plate of each metal, connected by a wire, and the inert hydrogen appears to be so far acted on at the platinum pole that the potency of the zinc, thus indirectly assisted, acts effectively on the chlorine. The motion of the atoms, so to speak, terminates in the formation of chloride of zinc contiguous to the latter metal, and is transformed into a mode of motion through which the force acting seeks the inert hydrogen by virtue of its tendency to equilibrium. The wire offers to the free force a congenial medium of transition, through which it passes to the hydrogen more easily than through the liquid, and completes its liberation to the active condition, when it passes off on the platinum pole, and the excess of force or rather motion, not absorbed by the hydrogen is transformed into heat as in unaided chemical reactions. The force, in passing, constitutes and maintains the electric current and may be taken off as such during, but not after, its transition, to the measure and no more of its excess over the hydrogen equivalent, which it is bound by the very conditions of the process to supply. It is implied in this hypothesis, that arrested or terminated motion, at least in chemical reactions, is not converted directly into heat motion, but into heat motion as a product or possibly remainder of electro-motion, exhibiting, as it does, the residum of force after restoring the lost potency of the liberated element. If this hypothesis shall be deemed worthy of investigation, the series of equivalents and differences in heat and electricity which it calls for, will afford ample and ready tests for confirming or disproving it. If we have a kernal of truth in these speculations, it is an approach to the nature and origin of electricity, disposes of all theories of different kinds or directions of that motion, and simplifies the relations between it and other manifestations of force; bringing, in short, most of the questions of chemistry into the domain of mathematical physics.

Correspondence.

[To insure insertion of Correspondence in our columns the full name and address of the writer must be given.]

The Chemical Reactions involved in the Mutual Decomposition of Steam and Hydro-Carbon.—Letter from Mr. Stimers.

45 WILLIAM STREET, NEW YORK, Oct. 12, 1867.

TO THE EDITORS OF THE AMERICAN JOURNAL OF MINING:

In your issue of the 17th of August last, there is letter from

me, giving a description of the process of burning petroleum in the retort invented by Col. Foote, as I think it occurs. I heard but one opinion expressed regarding the probable correctness of that description, and that in its favor, until within a few days. It appears that one of your cotemporaries has done me the honor to criticise it; and I have to ask for a small space in your valuable columns to reply to his remarks. In printing my letter, there was an accidental omission which was corrected in the issue of the week following. Your cotemporary does not appear to have seen the correction, at least he quotes from that part of my letter without making it. The main faults, however, which he appears to find are, that I held that the temperature of the retort was sufficiently high for the hydro-cabon and the hydro-oxygen vapors to mutually decompose each other forming carbonic oxide and free hydrogen, and that I further held that the temperature of the contents of the retort was lowered rather than raised by the chemical reactions within it. In reply to his first objection, that a red-heat is not sufficient to ensure the chemical reactions stated, I would say that I based my opinion to the contrary upon the following fact, given by Professor Daniel in C. W. Williams, work on the combustion of coal, page 28: "If a mixture of two parts of hydrogen and one of carbonic acid be passed through a red hot tube, water is formed, a portion of charcoal is thrown down, and carbonic oxide passes over with the excess of hydrogen." This not only shows that a retort maintained at a red heat is hot enough for effecting what I claimed, but also that I was correct in stating that no carbonic acid would be formed as long as free hydrogen was present. With regard to the second point attempted to be made by your cotemporary, viz., that the temperature within the retort is not lowered by the chemical reactions within it, I would state—The most accurate experiments which have been made to determine the absolute amount of heat evolved in the combustion of various substances are probably those of M. M. Favre and Silliman, who found the number of pounds of water which would be heated one degree Centigrade by burning one pound of the combustible to be as follows, with the substances named: Hydrogen—forming H O, 34.462; carbon, forming C O, 2.403. Now this latter union takes place within the retort, and, if that were the only phenomenon which obtained, the temperature would be raised accordingly; but to accomplish this union the superheated steam must be decomposed, and it is held by the best chemical authorities that reversing the process of combustion absorbs the same amount of heat as is evolved by the combustion. To decompose steam is to reverse the process of the combustion of hydrogen. For every pound of carbon which enters into the combination of carbonic oxide within the retort one-eighth of a pound of hydrogen is set free, and consequently 34.462—or 1-8 of 34.462=4307.75 calories are absorbed, and, if this were the only chemical change, the temperature of the contents of the retort would be lowered accordingly; but as a heating combustion takes place simultaneously, the difference of the two quantities measure the resultant effect. We have, therefore,

A cooling effect of	- - -	4307.75 calories and
A heating "	- - -	2403 "
Remaining cooling effect.	- - -	1904.75

This is equivalent to heating nineteen pounds of water from the freezing to the boiling point; and would be equal loss, were it not that the heat is again evolved at the burners by the recombustion of the hydrogen set free within the retort. I did not enter into these particulars in my former letter, because I supposed that every one who felt himself competent to write upon such a subject would know my statements of facts to be true, they being all based upon standard authorities.—I am respectfully, Allan C. Stimers.

Mechanical Washing of Coal.

An improved and very efficient coal-washing machine has been invented by Mr. Edmund Edwards, C.E., of the Adelphi, London, and which is coming into very extensive use, with the addition of some important improvements which he has recently patented. Essentially this machine consists of a rectangular screen of wire, or perforated metal, placed in a cistern of water, and upon which the coal is fed from a hopper. The method in which the vibration or blow of the water is given, in order to effect the separation of the coal and dirt (consisting of iron pyrites and shale, &c.) into layers, according to their respective gravities, is peculiarly effective, and has only been brought to its present perfection after many years of experiment and practice. The species of motion in the water, which the inventor deems to be necessary to produce the most perfect effect, consists first of a very sudden rise through the perforations of the plate upon which the coal rests. This rise need not be of great extent, but it should be very sudden, so as to throw up the mass of coal and dirt in and with the water. Secondly, the motion of the water should then cease entirely, the effect of this being that the several particles which compose the mass thrown up fall through the still water at speeds proportioned to their weights, so that the heavy dirt falls first upon the screen, then the lighter impurities upon the dirt, and finally the clean coal upon the latter. If the water, after being thrown up in the way described, were drawn down with equal violence the result desired would be very imperfectly obtained, and only after a long succession of pulsations. This is because the particles would not be allowed to range themselves in the order of their several weights by falling through the still water, but would be drawn violently down, together with the water. Mr. Edwards considers that it is for this reason that attempts to cause the rise and fall of the water, and the consequent separation, by the action of pistons in cylinders is imperfect, and very unsatisfactory in its results. In his machine Mr. Edwards has effected it by closing a part of the water cistern with a flexible disc of leather, which, so to speak, floats upon the surface of the contained water, and is borne up by it. This disc is provided with an arrangement to secure its vertical descent, and has also attached to it a block of hard wood, by striking which a blow of exactly the sudden kind required may be given to the water. This blow is given by the strokes of a succession of cams upon a revolving shaft, which is carefully arranged in such a position that the blow may be struck precisely upon the centre of the disc and its attachments, and so that any unnecessary wear and tear may be avoided. Thus, at each blow, the water is thrown up through the screen, carrying the coal and dirt with it, whilst after the blow, these substances fall through the still water, as required, and the water then sinks slowly through the screen, raising the disc gently for the next stroke. The whole of these operations take place at the rate of about 100 per minute, or if three cams can be arranged upon the shaft, at from thirty to forty revolutions of the latter. At this speed the effect is perfect; the coal and other substances fed into the hopper ranging themselves rapidly into as many layers as there are different specific gravities in the component mass (assuming the size to be moderately uniform), and this at the rate of about 50 tons a day, of ordinary coal, in one machine of a size not exceeding about 5 feet by 3 feet six inches in the screen. From the entire absence of injurious friction, and the slow motion of the shaft, very little power indeed is required to drive this ingenious arrangement, whilst the leather disc, the only part in which there is any wear, will last for many months, and can then be replaced for a few shillings. The advantages of an apparatus which is free from leakage, friction, wear and tear, and packing, are very conspicuous in this machine when at work, and can scarcely be over-rated. The most important point remaining to be attended to is the rapid removal of the upper layer of pure clean coal as it accumulates, and this Mr. Edwards effects by a series of rakes running on rollers, and driven backwards and forwards by a crank upon the same shaft which carries the striking cams. The height of the shaft relatively to the rakes is adjusted so that in the forward motion of the latter, when they are doing their effective work, the connecting-rod remains nearly horizontal, whilst in the return stroke only, when no work is doing, is its angularity considerable. The rakes are all hung in bushed bearings, and these bushes are the only parts where perceptible wear and tear exist, and they can easily be replaced. A large door at the bottom of the cistern completes the machine, any number of which can be arranged in line as may be required, and driven from the same source of power, whilst each can be stopped or cleaned instantly, without interfering with the action of the remainder. This appears to be a much more convenient arrangement than any circular form of machine can afford, since it enables a tramway to be laid in front of the line of machines for removing the clean coal, whilst the slack is fed in from one platform above. Last, though not least, the machine is a very cheap one.—*London Mining Journal.*

[The machine alluded to is evidently on the general principle of the "jigger," and the particular application above described is one which seems available for other material than coal. Apparatus of this class is not in as great demand among American miners as it ought to be. The metallurgical treatment of ores is the special province of the smelter; their extraction from the mine is the business of the miner; but their proper preparation for the processes of reduction seems to be, unfortunately, with us, a sort of neutral ground, open to both parties, and not thoroughly understood by either.—Eds. Am. Journal of Mining.]

Yield of Australian Mines.

The gold fields of Australia are located in the southeastern extremity of the island, and occupy but a very small portion of the same. They lie chiefly in the province of Victoria, of which Melbourne is the chief commercial port; although the yield of New South Wales, the adjoining province is very considerable. It appears from *Dicker's Mining Record* that there are sixty-one dividend-paying quartz mines in Victoria, working under the Limited Liability Act, besides a large number of other paying mines worked on the co-operative system. There are also numerous "progressive" mines, whose progress and prospects are regularly reported. The *Record* of February 26th contains a tabulated list of eighty quartz mining companies in New South Wales, with the number of tons crushed and amount of yield of each for the quarter ending December 31st, 1866. From this list we gather the fact that these companies during the last quarter of 1866, crushed 160,169 tons, from which was extracted an aggregate of 83,874 ounces of gold, equivalent to .523 per ton—a fraction over half an ounce. A careful consideration of this table gives one a very good idea of the general yield of the Australian gold mines. In carefully looking over this list of eighty mines, we find ten with a reported yield of less than one-quarter of an ounce, and twenty-six less than one-half an ounce; fifty-seven less than one ounce, and only twenty-three whose yield exceeded an ounce. One company is reported as having crushed 2,900 tons in three months, at a yield of a fraction short of one-twelfth of an ounce to the ton! There are very few mines in the list, which are worked to any extent, that reach a yield of an ounce to the ton. We note but four which produced 1,000 tons or over, with a yield that reached or exceeded one ounce to the ton. The highest yield reported was five ounces, by a mine from which only sixty tons were crushed. Of the eight mines which produced rock worth two ounces and over, only two produced as much as 250 tons, and one of them paid two ounces to the ton for 866 tons worked. The number of men engaged in mining in Australia, at the present time, is estimated at from 80,000 to 90,000. The total population of Australia is about one million, six hundred thousand of whom reside in the two gold-producing colonies. Considerable attention is being called to the loss of gold in the quartz mines, and a few of the most enterprising engineers are doing their best to remedy the same. The average loss is set at fully one third of the total assay value of the rock. The millmen generally appear to be very indifferent to the subject, more so, if possible, than in California.—*Scientific Press.*

Bullion Product of Nevada.

The value of bullion shipped from the State of Nevada through public channels during the first six months of 1866, amounted to $7,263,218; the shipments for a like period the present year having reached the sum of $9,341,949, being an increase of $2,078,731 on the product for the first half of last year. The total yield of the State for 1866, including all sources, aggregated $16,171,381, showing an excess in the product of the last half of the year of $1,644,945 over that of the first half. Supposing the working for the remaining half of the present year to be attended with a similar increase, we shall have a total product of $20,328,843 for the year 1867; a result quite within the limits of probability, as many mills about Virginia City and Gold Hill were compelled to remain idle for a considerable period during the winter and early spring months on account of short supplies of ore, hauling being impossible for a portion of that time, owing to the bad state of the roads. It is even fair to presume that the ratio of increase for the remainder of the current year will be greater than that of the past, as the ore supply is everywhere more ample and steady this year than last, several mills also having within the past few months been added to those previously in operation. In any event, there is no doubt but the bullion product of Nevada will this year exceed the sum of twenty millions of dollars, showing a steady annual gain from the time the mines in that State were first opened until the present; the increase for this over the last year approximating, if it do not exceed, four and and a half millions of dollars, an addition of more than twenty-five per cent. That the shipments of the present year will hereafter not only be kept up, but steadily and rapidly augmented, admits of no doubt; the numerous lodes of Central and Southeastern Nevada affording abundant evidence of their prolific and permanent character. Owing to their remoteness and unfavorable surroundings the development of these mines will, of course, be somewhat retarded; yet several have of late been brought to a productive stage while others are rapidly approximating that condition warranting the conclusion that a heavy contribution of the bullion product of the State may be counted on from that quarter next year, to be followed most likely by steadily increasing sums thereafter. With the aid of capital, even in moderate supply, there is no reason why Nevada should not increase her yield of the precious metals to the extent of several millions annually for many years to come. The deeper her mines are explored, the more productive they become, while the area of those yet unopened is almost without limit.—*San Francisco Com. Herald.*

Patent Claims.

Interesting to Miners, Millmen, Metallurgists, Oil-Men, and Others.

The following claims have recently been issued from the United States Patent Office:

69,533.—Drilling Machine.—G. W. Bishop, Stamford, Conn. Antedated Aug. 27, 1867:

1 claim, 1st, The combination of the arbor, C, screw rod, D, wheel, G, and friction-clutch, I, arranged and operating as herein shown and described.

2d, The combination of the cam-lever, P, with the bracket, J, perforated back-plate, K, and pins, o and m, substantially as and for the purpose herein specified.

3d, The combination of the arm, L, and plate, M, with the bracket, J, constructed and arranged substantially as and for the purpose specified.

69,564.—Amalgamator.—Frederic G. Hesse, San Francisco, Cal.:

1 claim, 1st, Separating as to size, by means of the separating channel, h, wherein the particles are acted upon by the two opposing forces, centrifugal force and resistance of a current of water, said current being produced by a centrifugal head and made adjustable in the manner and for the purpose substantially as described.

2d, Combining separation with grinding, in order to prevent the grinders from acting upon particles already fine enough, substantially in the manner as described.

3d, The revolving amalgamating-chamber, A, in combination with the stationary cylinder, t, and also in combination with the current of water, as described.

4th, The discharge, T, in combination with the filtering-chamber, F, and a current of water produced by centrifugal action, for the purpose and in the manner substantially as described.

5th, The annular channel, g, e, formed behind the grinding surfaces and in combination with the annular disk, a, a, forming an annular channel under C, which communicates with g, for the purpose of producing by centrifugal action, an upward current therein, the strength of which may be regulated by the dimensions of n, for the purpose substantially as described.

69,573.—Manufacture of Chloride of Zinc.—James E. Mills, Brooklyn, N. Y.:

I claim, 1st, Producing the chloride of zinc directly from such ores as contain either the oxide of zinc, carbonate of zinc, or silicate of zinc, by digesting such ores with muriatic acid, substantially as herein above set forth.

2d, Freezing the chloride of zinc from the gelatinous silica which is formed therein when the said chloride is produced from the silicate of zinc as above, by evaporating the water and excess of acid therefrom, and re-dissolving the chloride of zinc, substantially as described.

3d, Separating the iron and manganese from the chloride of zinc, made directly from the ores, when they exist in proportions injurious to the product, by drying the digested mass, oxydizing to a high degree of iron and manganese, and re-dissolving and drawing off the chloride of zinc, substantially as and to the effect herein above specified.

We claim the series of ribbed or cogged wheels, B2, B3, P4, I5, F6, inclosed within the drum, R, which wheels mesh together, and with the teeth or ribs on the inner surface of the hoop of the drum, the revolving of which revolves the pinion wheels, constructed and arranged to operate in the manner and for the purpose herein described.

60,655.—Machine for Pulverizing Rocks, Ores, etc.—William F. Goodwin, East New York, N. Y., and Charles B. Squire, New York City:

1 claim, 1st, The long bars, A and A', placed end to end in a horizontal line with each other in the frame, F, and having their outer ends pivoted on the bolts, B, one on each end of the frame, F, and having their inner ends operated independently of each other, by means of the cams, C and C', and pitman, P and P', arranged to operate in the manner and for the purpose substantially as described.

2d, The blocks, K and K', and spring, I, arranged to operate together in the manner and for the purpose substantially as described.

69,672.—Amalgamator.—William Wheeler Hubbell, Philadelphia, Pa.:

1 claim, 1st, The series of revolving angular-faced bars, e, operating and described over the cells, a, or bed of quicksilver upon the saturated ore, to force it down and longitudinally successively into contact with the quicksilver, for the purpose of enabling it to take up the gold and silver in the ore, and form an amalgam, thereby extracting these metals from their ores.

2d, The construction and arrangement of the feed-wheel, h, and water-way, r, to operate together and with the said angular-faced revolving bars, to regularly supply them with and saturate the ore for amalgamation, in the before-mentioned manner.

3d, The construction and application in connection with and behind the bars, e, and amalgamating bed, a, of a waste-basin or basins or amalgam reservoir, b, d, adapted to receive and save the quicksilver, gold and silver, or amalgam, as it is sometimes driven back in and with the ore by the action of the bars before settling, as described.

4th, The construction, arrangement, and gearing of the revolving pulleys, or their equivalents, to revolve all the bars together, by connections or shafts extending through the side piece, w, and with the feed-wheel, substantially as described.

5th, The construction of the side pieces, v and w, with the ends of the bars, and their revolving appliances, so that the bars may be readily removed to collect the amalgam, and be again restored to their place, and work without disturbing the revolving appliances, substantially in the manner and for the especial purpose as described.

69,667.—Machine for Compressing Peat.—John Jones, Baltimore, Md.:

I claim the application of pitted, grooved, or corrugated rollers, for the purpose specified.

I also claim the direct application of heat to the pressing apparatus.

69,687.—Governor.—Eli L. McNett, Canton, Pa.:

1 claim, 1st, The bars, C, upon the spindle, A, connected to the balls, E, by the rods, b, said balls connected to the short bar, D, on the spindle, A, at an angle of about 45 degrees, with the bar, C, by means of the rods, a, which are connected to the sliding sleeve, B, by the rods, d, all operating as described, whereby the momentum of the balls aids the centrifugal force to shut off the steam, and the inertia of the balls aids the centrifugal force to let on the steam as herein shown and described.

2d, The combination and arrangement of the cross bars, C, D, rods, a, b, d, balls, E, and sliding sleeve, B, as herein set forth for the purpose specified.

69,699.—Motive Power for Locomotion and Other Purposes.—D. A. Pratt, Fremont, N. Y.:

I claim, 1st, The mode and manner of adding the power of one "coiled ribbon or main-spring" or, in lieu thereof, a "coiled spiral wire spring" to another, by gear or its equivalent, in such a manner that the power of each or all of them shall reach one or more common centres "or units of power," substantially as described.

2d, The use of spiral wire springs in "sets" as well as also a coiled ribbon or main spring in groups, as herein described for the motive purposes.

3d, The mode and manner of attaching this particular power, as herein set forth, to the driving wheels of the carriage thereof, for the purposes and as described.

4th, The combination of this power, when thus accumulated, with three or more pinions and gear, as described and for the purposes set forth.

Special Scientific Brevities.

☞ Mr. Hofrath Schwabe, not long since, called the attention of the astronomers at Kew Observatory to certain phenomena on the surface of the sun, which he had noticed since last December, and which he recollected to have occurred before, but only at the time of a minimum in the number o

spots. These phenomena are an absence of faculæ or faculous matter, as well as of the scars, pores, and similar appearances usually visible; also, an equal brightness of the whole surface of the sun, the limb being as luminous as the center.

☞ **Most of our readers are, no doubt, familiar with a common** experiment showing the crystallization of supersaturated solutions. A salt is dissolved in hot water until it will take up no more. The solution will not deposit crystals on cooling if it is not agitated. Solidification may, however, be determined instantly by simply dropping in a fragment of the crystalized salt, or of any foreign matter. A large evolution of heat takes place, and Prof Bottger states that the experiment is rendered much more striking, in this respect at all events, by substituting ascetate of soda for the Glauber's salt or sulphate of soda, ordinarily employed by lecturers. When the former salt is used the thermometer sometimes rises 40 deg. centigrade. Prof. Bottger points out an interesting property of teroxide of thallium, which may, perhaps, be of commercial importance whenever science shall show us the way to produce the metal by the hundred weight. The Professor finds that a mixture of eight parts of teroxide of thallium and one of pentasulphide of antimony (the "golden sulphuret" of the Pharmacopœia) has the property of igniting by friction, and he suggests the use of this preparation for the manufacture of lucifer matches. The smallest electric spark is sufficient to set fire to this compound, which far surpasses, in this respect, the well-known mixture of equal weights of chloride of potash and the ordinary tersulphide of antimony. A mixture of teroxide of thallium and powdered sulphur ignites with a sharp explosion when struck. Picrate of thallium may also be exploded by a sudden blow

☞ **M. Sorel has invented a new kind of artificial stone.** A saturated solution of chloride of magnesium has the power of combining with an indefinite amount of calcined magnesia to form a perfectly insoluble compound of chloride of magnesium and magnesia, which sets into an extremely hard mass capable of receiving a polish like marble. Of this material the inventor makes billiard balls, and various ornamental objects. But a thinner paste of the kind mentioned is, it seems, able to hold together and consolidate from fifteen to twenty times its weight of sand and other materials, and so forming a rougher kind of stone suitable for tiles and flags, and which will even resist sea-water. It is needless to say that these materials may be colored by any of the ordinary mineral colors for ornamental purposes.

☞ **Prof. Cook, of Harvard College, has constructed a cheap** Endiometer, to be used in the lecture room as well as laboratory, in which the article called "stopper cord," manufactured by the Boston Belting Company, has been found very serviceable. The stopper cord consists of conical rolls of very elastic rubber, about four feet in length, and varying in diameter from half an inch at one end to an inch and a half at the other. Stoppers of any diameter between these limits may be cut from the roll and bored with a common brass-cock borer, which must be moistened with water to prevent adhesion to the rubber. The stoppers are found to be air-tight under a pressure of 15 lbs. to the inch, provided the contour between the tube and stopper is at least half an inch in length.

On-dit about Minerals, &c.

☞ **A correspondent writes to a San Francisco contemporary,** as follows. "It is, I believe, but little known, that from the old iron, shoes, etc., gathered in a quartz mill, a certain amount of gold may be taken out every year. In a mill of sixteen stamps, with the necessary amount of pans or Chili mills, etc., the savings of this kind may amount to from $4,000 to $5,000 every year, if carefully collected and treated. The present process of working the iron seems to be to burn or roast it and then work the gold out of it with the help of a knife or something similar to it. This is certainly a slow process, and the object of my writing to you is chiefly to see if you could not recommend some method cheaper, shorter and surer for the working of this iron, or rather the taking out from it of the gold it may and really does contain."

The editor thinks this estimate too much, but the mode suggested, good.

☞ **A British Consul in Japan, Mr. Gower, gives a remarkable** account of the wealth of the lead, iron, and coal deposits in the island of Yesso. In one place, coal forms the sea cliffs; and in another he walked four miles over an iron sand, which contained over 60 per cent. of metal. There are also indications of gold and copper.

☞ **A French company is engaged in melting slag and scoriæ** from the ancient Greek lead works, obtaining good metal to the value of 15,000 francs, daily, of which the greater portion is profit.

☞ **A very rich vein of lead is reported to have been struck by** Messrs. Hill & Kershaw about a mile and a half from the Jordan, in the Township of Tudor, Canada.

☞ **The sulphur mines of Italy are now producing something** like 300,000 tons per annum, which, taken in the crude state, represents a money value of about £1,200,000.

☞ **At oil bearing stratum three hundred miles square, has** been discovered not far from the city of Pekin, China.

☞ **Important discoveries of gold have been made in the north-**ern part of Chili.

All Sorts.

☞ **At the top of Mealfourvoncie, a hill in Invernessbire, Scot-**land, is a lake 180 feet long and 18 feet broad, which never freezes and is always full, without the appearance of any regular supply. This lake has been said to be unfathomable, but the contrary is now ascertained. About seventeen miles from this lake is another called Loch Wain, which is covered with ice all the year around. On the top of a ridge of mountains in Portugal, called Estrella, there are two lakes of great extent and depth, especially one of them, which is said to be unfathomable. What is most remarkable in them is, that they are calm when the sea is so, and rough when the sea is stormy; which makes it probable that they have a subterranean connection with the ocean; and this seems to be confirmed by the pieces of vessels they occasionally cast up, though almost forty miles from the sea. There is also another very curious lake in this country, which, before a storm, makes a frightful rumbling noise, that may be heard a distance of several miles. And there is a pool or fountain called Fervanes, about twenty-four miles from Coimbra, that absorbs not only wood, but even the lightest bodies thrown into it, such as cork, feathers, straw, etc., which sink to the bottom and are seen no more.

To these may be added a remarkable spring near Etremos, which petrifies wood, or rather incrusts it with a case of stone; but the most surprising circumstance is, that it throws up water enough in the Summer to turn several mills, and in the Winter it is perfectly dry.

☞ **The hydraulic propeller steamship, is really beginning to** arrest attention in Europe, as destined to overthrow the present system, has had another trial in Stokes Bay, England, with two Admiralty screw-vessels pitted against her. The London *Times*, of August 15th, devotes nearly three columns to the subject, giving a very minute report of the trial, from which it appears that in six runs over the measured mile, the gunboat "Waterwich," (hydraulic) obtained an average speed of 9.225 knots with forty one revolutions of the turbine, against an average of 9.267 knots by the screw boats, with 107.25 revolutions of the starboard engines and 108.29 of the port engines. The *Times* says the hydraulic machinery "worked perfectly and almost noiselessly," without "even so much as a worm bearing from the time of its erection" in the hold of the "Waterwitch." The Admiralty has ordered two other vessels to be fitted with the hydraulic propeller, to more fully test its powers.

☞ **Jeddo, the capital of Japan, is the largest and most pop-**ulous city in the world. It contains 1,500,000 dwellings, and 5,000,000 human beings. Many of the streets are nineteen yards wide in length, which is equivalent to twenty-two English miles. The commerce of Jeddo far exceeds that of any other city in the world, and the sea along the coast is constantly white with the sails of ships. Their vessels sail to the southern portion of the empire, where they are laden with rice, tea, sea-coal, tobacco, silk, cotton, and tropical fruits, all of which can find a ready market in the north, and then return freighted with corn, salt, isinglass, and various other productions of the north, which have a market in the south.

☞ **The return made to the Internal Revenue officer by the** Bank of California, for the month of July, showed a cash capital of $1,448,276; deposits, $5,346,136; and dividends of $68,950, or about two per cent. for the month upon its capital, and this after paying a revenue tax of $7,112.64.

☞ **An English manufacturing firm save $10,000 a year by con-**suming their coal and smoke.

☞ **San Francisco has a population of 137,000, which is an in-**crease of 74,000 in seven years.

A. T. STOUT & CO.,

MINERS AND SHIPPERS OF

"FULTON" AND "STOUT" LEHIGH COALS,

FULTON LUMP,

(Especially adapted for smelting Iron.)

ROOMS, 44 & 46 TRINITY BUILDING, NEW YORK.

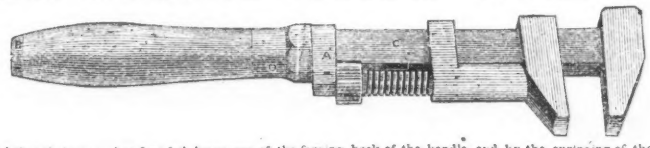
A. T. STOUT. S. VAN WICKLE, G. LEE STOUT.

1.8.69

A MINING ENGINEER, A NATIVE OF SWEDEN, OF thirty eight years' experience, and having the best Swedish instruments, of well-known and tried value, and who has a ready discovered several mines in New Jersey, wishes a situation for exploring in the mining regions of New Jersey or Pennsylvania. Inquiries by letter may be made to V. A., at the office of this journal. Oct. 18,2t

COLLINS & CO.'S

NEW PATENT SCREW WRENCH.



All consumers have noticed that their wrenches first fail by reason of the forcing back of the handle, and by the springing of the bar. Our improvement remedies both these defects, the bars being finished wider than any other wrench in market, and the handle cannot be displaced, as all strain on it is prevented by the screw thimble, D, (see cut.) Already adopted as the best by he principal railroads and machine shops, and for sale by Hardware Dealers generally. Address COLLINS & CO., 212 Water street, New York.

10:x4:xm

FOR SALE.

VALUABLE GOLD QUARTZ PROPERTY FOR SALE

The undersigned desires to call the attention of capitalists to some QUARTZ PROPERTY, situated in

ABBEVILLE DISTRICT,

about Eight miles from Abbeville, South Carolina, that is, on the Porn Belt, about Eight miles from the CELEBRATED DORN MINE, in the same district. The property comprises THREE VEINS OF GOLD QUARTZ, upon one of which a shaft has been sunk 56 feet to water level. The yield of gold, from quartz taken from this shaft and from the three veins, (on the surface,) is shown by the following certificate of Assay:

OFFICE AMERICAN JOURNAL OF MINING, 27 Park Row, N. Y.
NEW YORK, October 7, 1867.

"J. A. TALLMADGE, Esq.—Sir: The specimen of quartz, from Abbeville, South Carolina, submitted to us for assay, yields gold at the rate of $11 per ton of 2,000 lbs. avoirdupois, coin value. Respectfully,

(Signed) WESTERN & COMPANY.

Two hundred acres of the property is timbered, being but eight miles from Abbeville, to which point there is railroad communication. Such as would like to see the property, with a view to purchasing, would find a journey to it attended with little inconvenience. Letters may be addressed to

J. A. TALLMADGE, Abbeville, S. C.

☞ Specimens and a map of the property may be seen at the office of the AMERICAN JOURNAL OF MINING. oct12:4t

MISSOURI PINE AND MINERAL LAND.

FOR SALE my ONE-THIRD INTEREST in a tract of 4000 acres, with two steam Saw Mills now running, and lead deposits in course of development. Send for description and map. THOMAS ALLEN.

15:4,6t 722 South Fourth street, St. Louis, Mo.

A LEAD MINE FOR SALE OR LEASE.

The undersigned desires to communicate with some person or persons that will furnish capital to push forward the development of a lead mine, situated near Shullsburg, Lafayette Co., Wisconsin, that promises largely. The locality is within the richest mining district of Wisconsin. From the main shaft, which is now 106 feet in depth, seventy-five tons of lead ore have been taken of the very best and purest quality, and from other shafts varying in depth from thirty to sixty feet, 150 tons more have been taken, all within an area which would be covered by a square of two acres of ground. Upon the property there is a house for the accommodation of Miners, an engine of thirty horse power, a pump of 16 inch bore, and all the necessary tools for mining purposes. Also furnishing for the house, etc., etc. This property consists of the fee simple of 120 acres of land, on which are the main and most of the shafts, and of leases—equivalent to perpetual leases—of 120 adjoining land, at one-tenth royalty. Specimens of ore from the main shaft may be seen at the office of the AMERICAN JOURNAL OF MINING, 37 Park Row, N. Y. Address

12:4. 4t EDWARD MELOY, Shullsburg, Lafayette Co., Wis.

COAL.

SHIPPING FACILITIES AT ELIZABETHPORT.

The Mineral Spring Coal Company offer facilities for shipping some good coal at their new Pier 9, Elizabethport. To Lehigh operators, for stocking, it is quite advantageous. For terms, accomodation, &c., apply to

JOSEPH F. DEAN,
Oct. 12:4t Box 1,023, Boston.

PACKER, HEALY & CO.,

SUCCESSORS TO DANIEL PACKER AND CO.,

MINERS AND SHIPPERS OF

ANTHRACITE AND BITUMINOUS COAL,

20 Nassau Street, corner Pine Street, New York. Philadelphia, 203 Walnut Street. BOSTON, 29 Kilby Street 3:2-qp-q

RANDOLPH BROTHERS,

SOLE AGENTS OF THE ORIGINAL

SPRING MOUNTAIN LEHIGH COAL,

Extensively Used for Smelting Iron.

ROOMS, 28 AND 30 TRINITY BUILDING, NEW YORK 3:2 qp:q

CALDWELL, GORDON & CO.,

WHOLESALE DEALERS IN

ANTHRACITE AND BITUMINOUS COAL,

HENRY HEIL'S

CELEBRATED EAST FRANKLIN COAL.

Room 35 Trinity Building,

NO. 111 BROADWAY, NEW YORK.

E. CALDWELL, JR. F. A. HALL, N. P. GORDON, S. B. YOUNG.

BOSTON, Office 144 State St. PHILADELPHIA, 112 Walnut St.

3:2:qp:q

ENGLISH COAL AND CANNEL.

DESPARD COAL, from Baltimore,

PROVINCIAL COAL,

ANTHRACITE COAL,

For Sale in Lots to suit.

PARMELE BROS.,

AGENCY OF GEORGE WRIGHT & CO., LIVERPOOL,

Office, No. 32 PINE STREET, NEW YORK.

31-qp:q Yard, West 22d Street, near 10th Avenue.

REPPLIER, FREEMAN & CO.,

MINERS AND SHIPPERS OF

REPPLIER'S LOCUST MOUNTAIN, DUNCAN RED ASH,

AND

CUMBERLAND COALS.

WHARF, NORTH EIGHTH STREET, WILLIAMSBURG.

Office, - - - - - - - 111 Broadway, New York.

1:3 qp

HONEY BROOK COAL COMPANY

Exclusive Miners and Shippers of the Celebrated

HONEY BROOK LEHIGH COAL,

NO. 113 BROADWAY, NEW YORK.

JAS. H. LYLES, Agent.

Wharves, Fort Johnston, N. J. Philadelphia Office, 209 Walnut street.

3:6:qp q J. B. McCREARY, President.

DAY, HUDDELL & CO.,

MINERS AND SHIPPERS OF

HARLEIGH LEHIGH COAL,

And the Celebrated

HICKORY, BROAD MOUNTAIN, EXCELSIOR, SHAMOKIN AND NEW ENGLAND RED ASH.

OFFICES:

Room 51, TRINITY BUILDING, 111 Broadway.

Philadelphia. 109 WALNUT STREET. Boston. 7 DOANE STREET.

3:4:px

CRANE & FASSITT,

SHIPPERS AND DEALERS

IN

ANTHRACITE AND BITUMINOUS COAL.

NEWBURGH—ORRELL AND OTHER SUPERIOR GAS COALS.

OFFICES:

NEW YORK 113 BROADWAY. BOSTON 1 CENTRAL WHARF.

PHILADELPHIA: 216 WALNUT STREET. PROVIDENCE, R. I.: 10 SOUTH WATER STREET.

3:4:qp:q

LEWIS AUDENRIED & CO.,

Miners and Shippers of

CELEBRATED ANTHRACITE COALS,

Diamond Vein and Locust Mountain.

FROM PHILADELPHIA AND THE MINES, ELIZABETHPORT AND JERSEY CITY

Also, superior CUMBERLAND COALS.

205 Walnut street, PHILA. 14 Kilby street, BOSTON.

29 Westminster street, PROV. 24 Second street, BALTIMORE

27-tf 110 BROADWAY, NEW YORK.

SAMUEL BONNELL, JR.,

OFFERS FOR SALE

SUGAR CREEK

LEHIGH COAL,

Delivered on board vessels at Pier No. 4, Elizabethport, N. J.

Office, 43 & 45 Trinity Building, 111 Broadway N. Y. 1:3 qp:q

WILKESBARRE COAL,

DELIVERED DIRECT FROM THE MINES OF THE

Wilkesbarre Coal and Iron Company,

OR FOR RESHIPMENT AT

Elizabethport and Jersey City

OFFICE—No. 16 WALL STREET, NEW YORK.

3x3 xm

HECKSCHER, BOWNS & CO.,

NO. 111 BROADWAY,

ROOM 79 (TRINITY BUILDING), NEW YORK

Offer for sale the following Coals at the lowest market rates:

GLENDON COAL COMPANY'S

BUCK RIDGE, SHAMOKIN,

BLACK DIAMOND VEIN, RED ASH.

LOCUST MOUNTAIN, WHITE ASH.

Agents for the celebrated "Hartford Co. Coal." vol2 5-qp

JOHN WHITE & CO., SHIPPERS OF

McNeal, Wilkesbarre and Lehigh Coal,

FOR STEAM AND FAMILY USE.

OFFICE,

Room No. 75, 111 Broadway, (Trinity Building,

Broadway, N. Y.

JNO. WHITE 3:1:qp:q LORIS T. SNOW.

ASHBURTON COAL CO.,

MINERS AND SHIPPERS OF

LEHIGH COAL,

Delivered direct from the mines, or for reshipment at Port Johnston.

LOUIS J. BELLONI, Jr., Prest.

2:4-qp OFFICE, No. 41 PINE STREET, NEW YORK.

MISCELLANEOUS.

THE PORTAGE LAKE MINING GAZETTE.

The only Independent

LAKE SUPERIOR NEWSPAPER,

and which is the only fearless exponent and acknowledged authority of the Copper Mining Interest.

Terms—$3 per year.

7 3-1y H. & R. McKENZIE, Proprietors, Houghton, Michigan.

MOREY & SPERRY,

MANUFACTURERS OF THE MOST IMPROVED

CALIFORNIA STAMP MILLS,

For wet or the dry process.

HEPBURN & PETERSON,

PATENT PAN AND AMALGAMATOR,

BEATH'S REDUCER.

HENDY'S CELEBRATED

WET CONCENTRATOR,

ROCK BREAKERS, SEPARATORS,

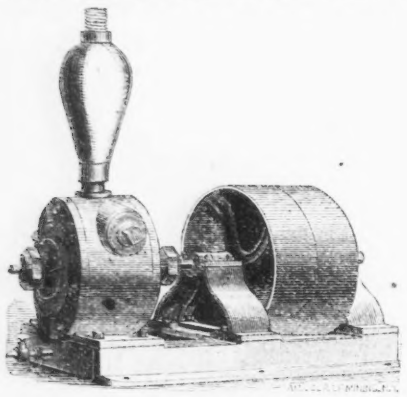
ENGINES, BOILERS, SHAFTING, &c., &c.,

Will be pleased to give practical information in milling and amalgamating Gold and Silver Ores, can furnish complete plans and specifications for the erection of machinery and buildings.

Agents for the North Carolina Gold and Sulphurizing furnace for treating concentrated tailings, complete patterns of firebrick for the same furnished; also agents for the Miners' Foundry, San Francisco, Cal.

MOREY & SPERRY, 95 Liberty street, N. Y.

ROTARY ENGINE AND PUMP Co.



METROPOLITAN PATENT

The best and most effective steam and Belt Pump adapted for general use. Warranted to form a vacuum of 25 inches. Mine owners should call and examine it as a MINING PUMP.

Offices of the Company, No. 181 PEARL STREET, Room 10, and No. 14 Second Avenue. ☞ Send for Circular. 12.3qp

STEAM PUMPS.

A. S. CAMERON & CO.,

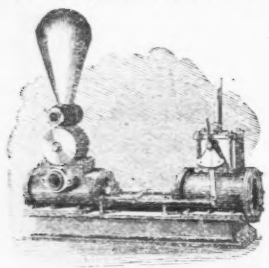
22ND STREET, CORNER OF 2ND AVENUE, N. Y.

Have one hundred and forty patterns to select from, arranged to order for pumping WATER, AIR, OIL, ACID, LIQUOR, SYRUP, MASH, &c.

Pumps a specialty in the most difficult situations. We refer to any first class machine shop in the United States.

Parties are hereby cautioned against using Steam Pumps arranged to work by belt in violation of our Original and Exposed Letter Patent, covering this feature. 8.4 qp

NIAGARA STEAM PUMP WORKS.



CAMPBELL & HARDICK, BROTHERS,

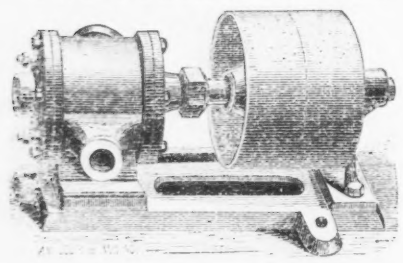
No. 9 ADAMS STREET, BROOKLYN, N. Y.

Send for Circular. 6-4-xm

EXCELSIOR ROTARY PUMP AND BLOWER,

USED IN

"AGITATING" AND PUMPING OIL, WATER, &c.



W. & R. FOSTER,

13.2qp **No. 5 Adams street, Brooklyn, N. Y.**

THE STEAM SYPHON PUMP,

is the most SIMPLE, EFFECTIVE and DURABLE device for raising water by steam yet discovered. It is an

Independent Lift and Force Pump,

and throws a steady, continuous stream, without piston, plunger, valves or movable parts of any kind.

It is an efficient FIRE ENGINE wherever a steam boiler is used, and valuable for MINING purposes where the height is not too great to which water must be forced. Address

STEAM SYPHON PUMP COMPANY,

4 vol 3 xm 45 Dey Street, New York.

HUNTOON PATENT GOVERNOR.

The advantages which these Governors possess, are that the engines to which they are attached, will maintain a

REGULAR SPEED WITHOUT ANY VARIATION,

whatever may be the resistance of the work, or how suddenly it may be thrown on and off. The engine will run uninfluenced by the varying pressure of the steam, be it thirty or eighty lbs. In a moment's time the revolutions of the driving wheel can be changed to exactly the speed required,

WITHOUT STOPPING OR CHANGING

any of the mechanism, remaining perfectly governed wherever set.

The proprietors warrant economical results from its use, for in no instance has it failed

TO PROVE ITSELF A STEAM SAVER.

THE CENTRIFUGAL OR BALL PRINCIPLE IS ENTIRELY ABANDONED IN THIS INVENTION,

and the valve lever is sustained with the same velocity in one position as in other.

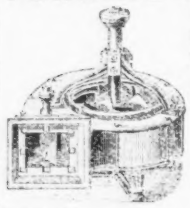
The Governor was illustrated in the JOURNAL OF MINING, August 24, 1867. Send for illustrated Circular.

R. R. HUNTOON,
J. AUGUSTUS LYNCH,

13.4.tf 62 Kilby street, near Liberty Square, Boston, Mass.

MILLING.

TURBINE WATER WHEELS.



The REYNOLDS PATENT embodies the progressive spirit of the age. Simplicity, Economy, Durability, Accessibility, all combined. The only Turbine that excels Overshots. Awarded the Gold Medal by American Institute.

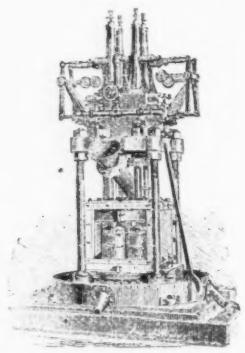
Shafting, Gearing and Pulleys furnished for all kinds of Mills, made on Mechanical principles, under my personal supervision, having had long experience. Circulars sent free.

GEORGE TALLCOT,

☞ 23qp-8-9 No. 98 LIBERTY STREET, New York

NEW YORK STEAM ENGINE COMPANY,

Manufacturers of



STEAM STAMPING MILL,

STATIONARY AND PORTABLE ENGINES.

Engine Lathes, Planers, Bolt Cutters, Upright Drills, and Machinist's Tools of all Descriptions.

OFFICE AND WAREROOMS, 222 PEARL STREET, N. Y. 6-1-xm

THE WATSON MANUFACTURING COMPANY,

RAILROAD AVENUE, OPPOSITE ERIE RAILWAY STATION,

MACHINISTS AND MILLWRIGHTS,

PATERSON, N. J.

Water Wheels, Heavy Gearing, Shafting, Pullies, etc.

ALSO, PORTABLE ENGINES.

And all kinds of Machinery for Oil Wheels, etc.

Rolling Mills, Steam Engines, Hydraulic and other Presses,

LATHES, PLANING AND SCREWING MACHINES.

And Tools in general. Iron and Brass Castings, of all sizes and descriptions. Patterns made to order. Also, manufacturers of the

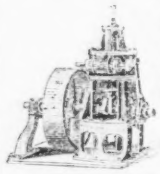
Improved Turbine Water Wheel.

oct.12, '67-1y

ROOT'S TRUNK ENGINES,

STATIONARY, PORTABLE, AND PROPELLER,

FOR MINING PURPOSES.



Engine 10 H. P., weight 1,000 pounds. Price, $450; 20 H. P., 2,000 pounds, $800; 40 H. P., 4,800 pounds, $1,400. Larger and smaller sizes in proportion.

Engines and Boilers, complete, 5 H. P., 1,750 pounds, $770; 10 H. P., 4,000 pounds, $1,125; 20 H. P., 7,500 pounds, $1,880; 40 H. P., 13,500 pounds, $3,145.

Parts very light for shipment.

GREAT COMPACTNESS AND SIMPLICITY.

Priced catalogues mailed.

ROOT STEAM ENGINE CO.,

15.4pl. 500 to 510 Second avenue, corner 28th st., N. Y.

METALLURGY.

SCHOOL OF MINES, COLUMBIA COLLEGE,

EAST 49th STREET, NEW YORK.

FACULTY:

F. A. P. BARNARD, S.T.D., LL.D., President.
T. EGLESTON, Jr., E. M., Mineralogy and Metallurgy.
FRANCIS L. VINTON, E. M., Mining Engineering.
C. F. CHANDLER, Ph. D., Analytical and Applied Chemistry
JOHN TORREY, M.D., LL.D., Botany.
CHARLES A. JOY, Ph. D., General Chemistry.
WILLIAM G. PECK, LL.D., Mining Surveying.
JOHN H. VAN AMRINGE, A.M., Mathematics.
OGDEN N. ROOD, A.M., Mechanics and Physics.
JOHN S. NEWBERRY, M.D., Geology.

The plan of this School embraces a three years' course for the degree of ENGINEER OF MINES, or BACHELOR OF PHILOSOPHY.

For admission, candidates for a degree must pass an examination in Arithmetic, Algebra, Geometry and Plain Trigonometry. Persons not candidates for degrees are admitted without examination, and may pursue any or all of the subjects taught. The next session begins October 7, 1867. The examination for admission will be held on October 3. For further information, and for catalogues, apply to DR. C. F. CHANDLER,

3.-1qp Dean of the Faculty.

MANHATTAN

METALLURGICAL AND CHEMICAL WORKS,

554 and 556 West Twenty-eighth Street, N. Y.

ASSAYS OF GOLD, SILVER, COPPER AND LEAD ORES.

Special attention given to the Analysis of Ores, Minerals, Clays, Waters, and General Commercial Products of all kinds.

Tests of Gold, Silver, Copper and Lead Ores, by smelting, in quantities of Fifty Pounds to Five Tons.

Gold and Silver Ores worked in Parcels of Five Hundred Pounds to Ten Tons, by Amalgamation Process.

Refining of Bullion at usual rates.

Gold Dust, Bars, Old Gold and Silver bought.

Founders and Metal Workers furnished with Alloys of every description.

Parties requiring plans and specifications for the erection of Smelting Works, can be supplied, and the actual process while working shown.

Plans and specifications furnished for works, and processes for the manufacture of Sulphuric Acid, Soda Ash, and general Chemical produce.

Superintendent, MR. WILLIAM WEST, formerly of Swansea, Wales.

For engagements and terms, apply at the office of

SECOR, SWAN & CO.,

P. O. Box 1412. [3.1-xm] **66 Broadway, New York.**

I. W. SYLVESTER,

ASSAYER.

Laboratory, 22 Willow street, Brooklyn. To be seen during office hours at United States Assay Office, No. 30 Wall street, New York.

Metallic Ores carefully Assayed; Gold and Silver Ores Amalgamated; the value of Coals, Peats, &c., determined. 8-2-1y

JOHN WATERS' SONS,

GOLD AND SILVER REFINERS

AND

ASSAYERS.

ESTABLISHED 1830.

No. 57 VESEY STREET, NEW YORK.

ANALYSES MADE OF ORES, MINERALS, ETC., BY FIRE.

Lead and Copper Ores a Specialty.
Miners are assured of careful and accurate assays.
Gold Dust and Bars Purchased. 24.2-px

LABORATORY OF INDUSTRIAL CHEMISTRY.

DIRECTED BY

PROF. H. DUSSAUCE, Chemist.

Advices and consultations on chemistry, applied to arts and manufactures, agriculture, metallurgy, etc.; plans of factories, drawings of apparatus. He can furnish the most recent improvements in chemical fabrications, such as chemical products, petroleum soaps, candles, colors of lead and zinc, varnishes, ceramic glass, wines, liquors, vinegars, matches, inks, dyeing and calico printing, perfumery, colors of coal tar, tanning, etc., etc.

He will give all necessary information to exhibitors to the great Exhibition. Address New Lebanon, Columbia Co., N. Y. 22.1.qb

CHARLES P. WILLIAMS,

ANALYTICAL AND CONSULTING CHEMIST,

AND

MINING GEOLOGIST,

NO. 148 WALNUT STREET, PHILADELPHIA.

Assays and Analyses of Ores, Soils, etc.,

Executed with Promptness and Accuracy.

EXAMINATION OF, AND REPORTS ON, MINERAL LANDS AND MINES FURNISHED ON APPLICATION. 3-1-qp

OFFICE OF J. H. TIEMANN,

ANALYTICAL CHEMIST,

240 PEARL STREET, NEW YORK

Assays of Gold and Silver, Analyses of Ores, Minerals, Furnace products, Guano, Soda Ash, &c., &c.

Special attention given to the Analysis of Iron Ores, Iron Slag, and Iron Cinder.

Gold and Silver bought. 17.2-qp

FRANCIS E. ENGELHARDT, PH., DR.,

PROFESSOR OF CHEMISTRY IN ST. FRANCIS XAVIER'S COLLEGE,

ANALYTICAL AND CONSULTING CHEMIST,

49 WEST FIFTEENTH STREET, NEW YORK.

Respectfully offers his Professional Services to

Miners, Manufacturers and Others.

CHEMICAL INVESTIGATIONS IN THE VARIOUS BRANCHES OF MANUFACTURING, AND

ANALYSES OF EVERY KIND

will be promptly and accurately executed. 23-qp

ADELBERG & RAYMOND,

MINING ENGINEERS AND METALLURGISTS,

90 BROADWAY, N. Y.

Mines, Mineral Lands, Machinery and Metallurgical or Chemical Works examined and reported upon. Advice given to miners, chemists and manufacturers. Assays and analyses made. Competent Engineers furnished to companies or individuals. 5.3-qp

QUARTZ AND ORE TREATING WORKS,

ADOLPH LILIENTHAL,

NO. 20 FRANKFORT STREET, NEW YORK.

respectfully informs Miners and Mining Companies that he is now prepared to reduce and amalgamate ores of every description by the most approved processes.

Assays and Analytical Examinations of Ores carefully attended to. 22.2-qm

R. P. ROTHWELL,

MINING & CIVIL ENGINEER AND METALLURGIST,

From the Imperial School of Mines, Paris, Member of the Geological Society of France, &c.

OFFICE, WILKESBARRE, PA.

Having had a large practical experience in Europe and this country is prepared to examine and report on all kinds of Mineral property, superintend Mines and Metallurgical Works, Assay Ores, &c. 18.2-qp

IMPORTANT TO MINERS.

Every description of Analysis and Assays carefully attended to, and returns promptly made, by

WESTERN & COMPANY,
No. 37 Park Row, and 145 Nassau St., New York City.
P. O., Box 5,969.

ALFRED P. ROCKWELL,

(PROFESSOR OF MINING IN YALE COLLEGE.)

Consulting Mining Engineer.

Address, NEW HAVEN, Connecticut. 12.2-qp

THE STAATS AMALGAMATOR.

(See Engraving in AMERICAN JOURNAL OF MINING, Vol. 4, No. 14.)

This new process for amalgamating, and at the same time desulphurizing Gold and Silver Ores, has been tested upon some of the most refractory ores as well as tailings of refractory ores that had been previously treated by a well known process, with the following results, viz.:

I have treated North Carolina ores from three different mines (containing sulphurets) which yielded by other processes from $10 to $18 per ton, from which I obtained respectively $18 13, $67 35 and $84 62 per ton. I have also made repeated trials upon tailings of sulphuret ores, and in every instance I obtained over twice the quantity of Gold and Silver previously taken out.

[Extract from the New York Daily Times, March 28th, 1867.]

MILLIONS ADDED TO OUR TREASURE.

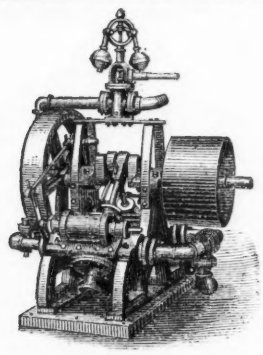
"I saw last week some experiments made with the Staats Amalgamator, with a view to ascertain if it would (as claimed by the patentee) desulphurize, and at the same time take up the liberated particles of Gold and Silver with heated Mercury. The experiments were made upon tailings that had twice been treated, and yielded $25 per ton by a process which had taken out about all the free Gold and Silver, so that it was necessary to desulphurize in order to get out any more. Repeated trials were made, and the result was very satisfactory, as the tailings yielded at the rate of $40 to $160 per ton, clearly proving that superheated steam will desulphurize and liberate the Gold and silver. * * * The Staats Amalgamator, when once in general use, (as it undoubtedly will be, owing to its practicability, effectiveness and economy,) will add millions of dollars to the treasury of the world, which would otherwise have been lost for the want of some cheap and effective process for desulphurizing."—A MINER.

The powdered quartz, mercury and sufficient water are placed in a cylinder, which is then closed air-tight and made to revolve slowly over a fire, until the steam gauge indicates 70 or 120 lbs. steam, according to the nature of the quartz. If the quartz does not contain much refractory ore, 70 lbs. of steam is sufficient; if it does contain much, 120 lbs. of steam is necessary in order to thoroughly desulphurize and liberate the gold and silver. As soon as the required amount of steam is attained, the fire is withdrawn and the cylinder is kept revolving, until cool. It is then opened and emptied, and is ready to repeat the operation. The machine will treat from 1,000 to 2,000 lbs. of quartz at a time, inside of three hours, at very little expense.

It is claimed for the above process, that the steam not only desulphurizes but drives the heated mercury through the quartz in every direction; and the revolving of the cylinder constantly intermingles the quartz and mercury, so that every particle of the gold and silver must come in contact with the heated mercury and consequently be taken up, thereby accomplishing a most perfect system of amalgamating and desulphurizing. Patented Dec. 22d, 1865.

JOHN T. STAATS, Patentee, 85 Amity street, N. Y.

PIONEER IRON WORKS,



OFFICERS:
A. BASS, President; E. KEIGHLEY, Sec'y and Treas.;
J. V. BEEKMAN, Manager.

Nos 4, 5, 6, CONOVER STREET (ATLANTIC DOCK) SOUTH BROOKLYN.

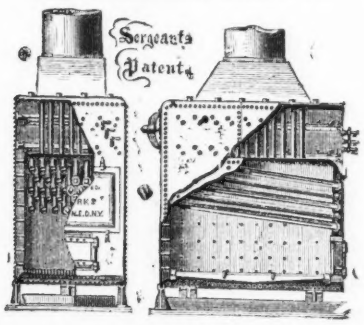
Pioneer Patent Oscillating Engine, Double and Single,
FOR MINING, MANUFACTURING AND MARINE PURPOSES.
ALSO,
BOILER TANKS, SHAFTING PULLEYS, HANGERS, and STEAM FITTING.
10:vol2:qp

BOILERS.

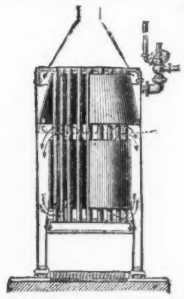
THE GREATEST IMPROVEMENT OF THE AGE.

Sergeant's Patent Boilers.

ACKERMAN & VOGT,
STEAM BOILER WORKS,
OFFICE, 279 FIRST STREET, BROOKLYN E. D.



Manufacturers of
SERGEANT'S PATENT BOILERS,
which will raise more steam from the same amount of fuel, and occupies less space than any boiler now in use.
Also of all kinds of Steam Engines and Boilers. High and Low Pressure Boilers, Tanks, Filters, Kettles, Curbs, Oil Stills, &c. New and Second Handed Boilers constantly on hand.
THOS. ACKERMAN, HENRY VOGT.
Send for circular. 17-2 qp

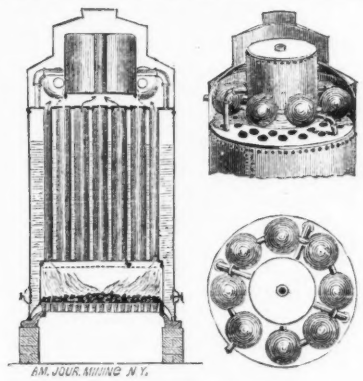


THE HICKS BOILER,

WILL NOT SCALE,
WILL NOT FOAM,
GIVES DRY STEAM,

Send for Circular to
JAMES M HICKS,
No. 85 LIBERTY STREET, New York City
11:3:1qp

DAVIS' PATENT
STEAM SUPERHEATING BOILER.



GREAT SAVING IN FUEL.

Among the many in use would refer to two (75 horse each) now running the machinery of the New York Tribune.

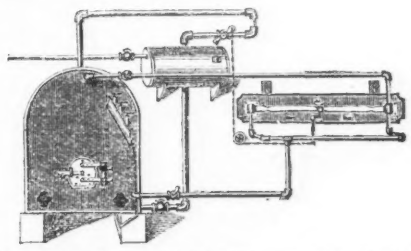
Manufactured by the Duplex Steam Boiler Manufacturing Company, Long Island City, Long Island. (Opposite 34th Street Ferry, New York.)
☞ Send for Illustrated Circular. ☜ 25:2:qp

INCRUSTATION OF
STEAM BOILERS,

This greatest of evils in the use of steam is entirely prevented by WINANS'S "ANTI INCRUSTATION OR BOILER POWDER."
INVENTED, 1855.

Twelve years in sucessful operation in over 20,000 boilers, without injury or foaming, saving many times its cost in fuel and repairs.
A clean boiler generates steam more freely, and will outlast ten dirty or incrusted ones.
Beware of Frauds and Imitations.
H. N. WINANS, CHEMIST, 11 WALL STREET, NEW YORK.
3.13.ps

J. N. B. BOND, JR., MANUFACTURER OF THE



STEAM BOILER FEEDER.

PATENTED MAY 23d, 1865.

361 WEST TWELFTH STREET,
10:4:ps (Late Troy street,) NEW YORK.

W. S. FOX & CO.,
DEALERS IN
STEAM ENGINES AND BOILERS,
LATHES, PLANERS, STEAM PIPE AND FITTINGS, SHAFTING, PULLIES AND BELTING.
Also Manufacturers of
FOSTER'S PATENT PEAT,
AND
PAPER BOX MACHINES,
11:3:xm 470 WATER ST, (cor. Pike,) N. Y.

STEAM ENGINES.

JOHN B. FULLER,
47 DEY STREET, NEW YORK CITY.
MANUFACTURER AND DEALER IN
PORTABLE AND STATIONARY
STEAM ENGINES AND BOILERS.
From 2 to 250 Horse Power.

Most approved circular and upright Saw Mills, Grist Mills, Sugar Mills, and all kinds of Mining and Plantation Machinery on hand and built to order.
☞ Shafting Pullies, Leather and Rubber Belting, and all Kinds Iron and Woodworking Machinery
☞ Machinery and Railway Supplies in store and shipped at the lowest rates. 4:7:ps

W. D. ANDREWS & BRO., 414 WATER ST., NEW YORK.
Manufacturers of Andrews' Patent
OSCILLATING ENGINES,
CENTRIFUGAL PUMPS, AND TUBULAR BOILERS.

Our ENGINES occupy little room, are light, simple, cheap, and economical require no special foundation or balance-wheel pit, and can be run from 150 to 500 revolutions per minute with safety. Sizes from 1-2 Horse to 250 Horse-Power.
Our CENTRIFUGAL PUMPS pass mud, sand, coal, corn, gravel, etc., without injury, and use little power. Sizes from 90 Gallons to 40,000 Gallons per minute capacity. For sewers, canals, coffer dams, condensers, irrigation, and wrecking, they are unequaled.
Our BOILERS are light, strong, and portable, are economical of fuel, burn Wood, Hard or Soft Coal, and CONSUME THE SMOKE. Sizes from 2 to 50 Horse-power.
Awarded First Premiums at the recent Fair of the American Institute—a gold medal to each.
Portables from 2 to 20 Horse-Power. Send for descriptive pamphlets and price-lists July1:qp:q

PASSAIC MACHINE WORKS.
CORNER OF PASSAIC AND OGDEN STREETS, NEAR PASSAIC RIVER.
Fourth Block North of the Morris & Essex Rail Road Depot, NEWARK, N. J.
MANUFACTURE
STEAM ENGINES,
BOILERS, SUGAR MILLS, SAW AND GRIST MILLS, EMBOSSING MACHINES, Calenders, Geering, Pullies, Hangers and Shafting, Cast and Wrought Iron Pipe and Fittings, for Steam and Water;—Power, Drop & Foot Presses, MACHINISTS' TOOOLS OF ALL KINDS, WM. WATTS' PATENT STEAM PUMP.
Iron and Brass Castings Made to Order. Jobbing Promptly attended to. Terms Easy, and all Work Warranted.
WATTS, CAMPBELL & CO, Proprietors
WM. WATTS, DANIEL T. CAMPBELL. GEO. WATTS.
12:2:qp

BIRD'S PATENT
OSCILLATING ENGINES,
FOR
MINING, MARINE AND MANUFACTURING PURPOSES.
COMBINING SIMPLICITY, DURABILITY AND ECONOMY.

These Engines work a slide valve in a stationary steam chest, and require no packing around the trunnions.
These engines are offered at 20 per cent. lower than any other make of equal power or quality of finish.
All sizes constantly on hand or made to order.
W. E. BIRD, 163 Bank street, New York.
Call and examine, or send for circular. 13-4-ps

STEAM ENGINES.
HUBBARD & WHITTAKER,
102 FRONT STREET, BROOKLYN, N. Y.
Manufacturers of
HIGH AND LOW PRESSURE STEAM ENGINES
Also,
BOILERS, SUGAR MILLS, HYDRAULIC PRESSES, and TINMEN'S TOOLS
Of all descriptions,
SHAFTING, PULLEYS, AND IRON AND BRASS CASTINGS,
Constantly on hand.
Send for Circular. 12-4-qx

ATLANTIC
STEAM ENGINE WORKS,
IRON AND BRASS FOUNDERS.
MANUFACTURERS OF
Steam Engines, Boilers, Sugar Mills, Tanks, Hydraulic and Hydrostatic Machines, and Machinery used in the Arts and Manufactures.
CORNER WATER AND ADAMS STREETS, BROOKLYN, N. Y.
R. B. DUYCKINCK, Treas. 2:4xm **WM. ARTHUR, Pres.**

PORTABLE AND STATIONARY
STEAM ENGINES.
Boilers, Circular Saw Mills, Mill Work, Cotton Gins, Cotton Gin Materials,
Manufactured by the
ALBERTSON & DOUGLASS MACHINE COMPANY,
NEW LONDON, CONN. 8.3.qp

STEAM PUMPS.

J. CLAYTON'S
Patent Steam Pumps,
HAND PUMP AND STEAM ENGINE COMBINED.

These pumps contain every desirable quality in a steam pump, are made of the best material, and in the best manner, and are the cheapest first-class pumps in the market. For cut and description see JOURNAL OF MINING, No. 18, Vol. I. Please send for circular.

All sizes of pumps made to order at the shortest notice.
7.4.ps JAMES CLAYTON, 102 Front street, Brooklyn, N. Y.

HYDRAULIC WORKS,
MANUFACTORY,
BROOKLYN, N. Y

Steam Pumping Engines, Single and Duplex, Worthington's Patent, for all purposes, such as Water Works Engines, Condensing or Non-condensing: Air and Circulating Pumps, for Marine Engines; Blowing Engines; Vacuum Pumps Stationary, and Portable Steam Fire Engines Boiler Feed Pumps, Wrecking Pumps.

Mining Pumps,

Water Meters, Oil Meters; Water Pressure Engines; Stamp Mills for Gold, Silver and Copper Ore; Eaton's Patent Amalgamators for Gold and Silver Steam and Gas Pipe, Valves, Fittings, &c.; Iron and Brass Castings.
☞ Send for Circular. E. R. WORTHINGTON,
19-2-qp 61 Beekman street, New York.

STEAM PUMPS.—GUILD & GARRISON,
ENGINEERS AND MACHINISTS.

Manufacturers of Steam Pumps, Steam Engines, Vacuum Pans, and all the necessary connections. The Steam Pumps are of the following class, namely

EXCELSIOR, AIR VACUUM
BALANCE WHEEL, DOUBLE PLUNGER
DUPLEX, WATER PROPELLOR,

and a number of other plans adopted for different purposes. These Pumps are suitable for all the various kinds of Pumping. Manufactured and for sale at the STEAM PUMP WORKS, Cor. South Tenth and First Street, WILLIAMSBURGH, NEW YORK. 2.4.qp.

CHAPPELL'S PATENT
STEAM VALVELESS PUMP
OR
BILGE EJECTOR.

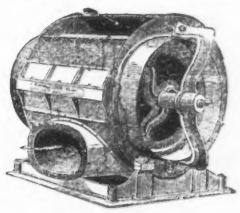
Address
CHAPPELL MANUFACTURING COMPANY,
4.4.xm 99 BANK STREET, New York

PUMPS! PUMPS!! PUMPS!!! PUMPS!!!

ALL KINDS OF
STEAM POWER, ROTARY, LIFT, SUCTION,
AND
HAND PUMPS,

And all Kinds of Gas and Plumber's Tools and Fittings, Wholesale and Retail, at the Lowest Rates, by
J. B. FULLER,
4:7:ps 47 Dey street, New York

SMITH & SAYRE
MANUFACTURING COMPANY,
PROPRIETORS AND MANUFACTURERS
OF THE
MACKENZIE PATENT



BLOWER and CUPOLA and SMELTING FURNACE.
Also, Mackenzie's Patent GAS EXHAUSTER and COMPENSATOR. Address
SMITH & SAYRE MANUFACTURING COMPANY,
95 Liberty street, N. Y.
Send for illustrated pamphlet. 13:4:xm:q

EXCELSIOR MANUFACTURING COMPANY,
—MANUFACTURERS OF—
HARDWARE, &C.,
205 & 207 EAST 22d STREET, N. Y.,

We are now prepared to supply the Trade with an extensive variety of our justly celebrated and very superior quality of

Skates, Shears, Scissors, &c.,

AT THE VERY LOWEST MANUFACTURERS PRICES.

FIFTH AVENUE SKATES,
Excelsior, or Walton's Favorite.
NEW YORK CLUB.

N. B.—These are packed one pair in a box.

THE PRIDE OF THE PARK.

LADIES' SKATES, with or without Straps. For sale by Dealers in Hardware.
14.4.ps.

PROGRESS MACHINE WORKS.

A. & F. BROWN & CO.,

Nos. 57, 59 & 61 LEWIS STREET, between Delancey and Rivington streets, NEW YORK.

Steam Engines,
Steam Pumps,
Power-Hoisting Machines,
Mining,
Sugar-House, and
Brewery-Machinery,
Shaftings,
Pulleys and Gearings,
Presses, &c.

And all kinds of Machinery planned, designed, and made to order. Gear-Cutting, Turning, Forging, Planing and Jobbing in general.

ADOLPHUS BROWN. FELIX BROWN. JOHN D. A. MESSING

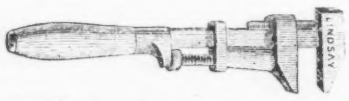
Hhd. August 24, 1867.

CHARLES SCHENK, a resident of Pah-Ranagat Silver Mining District, and County Surveyor of Lincoln county, Nevada, begs leave to inform the mining public, that he is able and ready to give true and valuable information about mining property in this District.

CHARLES SCHENK, M. E.

References—Wm. A. Smith, Esq., 25 and 27 Nassau street.
Prof. Harper, New York, etc. oct12, '67:6m

LINDSAY'S PATENT.



The merits of this Wrench are too well known to need comment. Go to the nearest hardware store and LOOK AT IT BEFORE PURCHASING ANY OTHER, or send for illustrated circular to

MANVEL & LINDSAY,
15 4qx New York.

HEALTH AND ECONOMY.

PURE WATER

PATENT LEAD-ENCASED TIN PIPE.

Recommended by the medical faculty and approved by Water Commissioners.

COSTS LESS THAN LEAD PIPE, AND IS MUCH STRONGER.

Recent improvements enable us to supply this Pipe at a less price per foot than common lead pipe.

To furnish the cost per foot, please give the head or pressure of water and bore of pipe. Pamphlets sent free on application. Address the C. H. WELLS, SHAW & WILLARD MANUFACTURING COMPANY, foot of West 27th street New York. 9:24:6m

JOHN GALT,

WHOLESALE DEALER IN ROOFING SLATE.

SOLE AGENT FOR THE

EAGLE SLATE COMPANY OF VERMONT,

Who produce Purple, Green and Red ROOFING SLATE. Sole Agent for New York and the West for the

CHAPMAN SLATE COMPANY OF PENNSYLVANIA,

Who produce a Superior Black or Dark Blue Slate; also Sole Agent for New York and the West for the

LEHIGH SLATE COMPANY OF PENNSYLVANIA.

GENERAL DEPOT,

Cor. Tenth Avenue and Twelfth Street, N. Y. City.

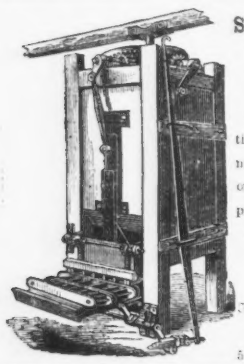
Established in 1850.

BRANCH DEPOTS:

Buffalo: Jas. W. Chatman, Terrace Square.
Chicago: James Parker, corner Franklin and Washington Streets.
Charleston, S. C.: C. J. Demorest, East Bay, near Wentworth Street.
New Orleans: J. J. Lee, 368 Magazine Street.

☞ I am prepared to give parties the prices of Slate delivered throughout the United States at the nearest Railroad Station.

Orders by mail will receive prompt attention. 17:2 xm.



STAR BRICK MACHINE

The best, strongest and cheapest in the United States. We warrant it to make more and better Bricks than any other Machine now in use. It takes less power and help to run it.

Manufactured and sold by

JAMES MARTIN.

Corner North Third and Grove streets, Jersey City, N. J.

5:43qp

GREAT PRIZE KILN.

HOFFMAN'S PATENT CIRCULAR BRICK KILN,

With perpetual operation, received, as it did at the International Exhibition in London, 1862, also at the late Exposition in Paris, one of the great Prizes. Only sixty-four in all of these Prizes were distributed, and the Inventor had the honor of receiving said Prize from the hands of the Emperor Napoleon.

In this Kiln is going on at the same time and without interruption, the BURNING READY, the GRADUAL COOLING, the GRADUAL HEATING, the SETTING of fresh and the TAKING OUT of burned and sufficiently cooled bricks, lime, cement, etc., and the FIRES ARE SUPPLIED WITH RED-HOT ATMOSPHERIC AIR to support the combustion.

By the use of this Kiln two-thirds of the fuel is saved, the bricks are burnt better and much more uniform, labor is saved in working it, and any kind of fuel, as wood, coal, peat, small coal, etc., may be used. For particulars apply to 8:4:13t G. L. DETHLEFS, 213 East Broadway.

STEAM, GAS AND

WATER PIPES,

Boiler Flues,

And all kinds of

BRASS AND IRON FITTINGS, TOOLS, &c.,

For Steam and Gas-Fitters use.

☞ The best and largest assortment in the city, and at greatly reduced prices. Send for price list.

J. B. FULLER,
4.7.ps 47 Dey street, New York City

FISK & HATCH,

BANKERS,

And Dealers in

GOVERNMENT AND OTHER DESIRABLE SECURITIES,

No. 5 NASSAU STREET, N. Y.,

Recommend to Investors the

FIRST MORTGAGE BONDS

OF THE

CENTRAL

PACIFIC RAILROAD COMPANY.

This Company is constructing under the patronage of the

UNITED STATES GOVERNMENT

the Western end of the

Great National Railway across the Continent.

Their line will extend from Sacramento, California, across the Sierra Nevadas to the

RICHEST AND MOST POPULOUS SECTION OF CALIFORNIA,

and thence through the

GREAT MINING REGIONS OF THE TERRITORIES,

To the vicinity of Salt Lake City. It forms the

SOLE WESTERN LINK

of the only route to the Pacific which is adopted by Congress and

AIDED BY THE ISSUE OF UNITED STATES BONDS.

Their road is already completed, equipped and running for ninety-four miles from Sacramento to within twelve miles of the summit of the Sierras, and a large amount of the work of grading, tunnelling, etc., beyond that point has been accomplished.

THE FIRST MORTGAGE BONDS

of this Company afford unusual inducements of safety and profit to investors, for the following among other reasons, viz:

FIRST—The rate of interest is Six Per Cent. in Gold, payable semi-annually in the City of New York.

SECOND—The principal is payable in Gold at maturity.

THIRD—The cost of the Bonds, Ninety-five per cent. and accrued interest is Ten per cent. less than that of the cheapest Six per cent. Gold Bearing Bonds of the Government.

FOURTH—The United States Government provides nearly half the amount necessary to build the entire road, and looks mainly to a small per centage on the future traffic for re-payment.

FIFTH—Owing to this liberal provision, accompanied with extensive grants of public lands, by which the Government fosters this great national enterprise, its success is rendered certain, and its financial stability is altogether independent of the contingencies which attend ordinary Railroad enterprises.

SIXTH—The security of its First Mortgage Bonds is therefore ample, and their character for safety and reliability is equalled only by that of the Government itself.

SEVENTH—The net earnings of the completed portion are already largely in excess of the interest obligations which the Company will incur on twice the distance, and are steadily increasing, rendering the uninterrupted payment of the interest absolutely certain.

EIGHTH—At the present rate of Gold they pay nearly 8½ per cent. per annum on the amount invested.

The Bonds are issued in denominations of $1,000 with semi-annual Gold Coupons attached, payable in New York, and are offered for the present at 95 per cent. and accrued interest (in currency) from January 1.

Orders may be forwarded to us direct, or through the principal Banks and Bankers in all parts of the country.

Remittances may be made in drafts on New York, or in Legal Tender Notes, National Bank Notes, or other funds current in this city, and the Bonds will be forwarded to any address by Express, free of charge. Inquiries for further particulars, by mail or otherwise, will receive punctual attention.

FISK & HATCH,

BANKERS AND DEALERS

IN

GOVERNMENT SECURITIES,

No. 5 NASSAU STREET, NEW YORK.

N. B.—All kinds of Government Securities received at the full market prices in exchange for the above Bonds. Also,

All Descriptions of Government Securities

KEPT CONSTANTLY ON HAND,

And Bought, Sold, or Exchanged.

Gold Coin and U. S. Coupons bought, sold and collected.

DEPOSITS RECEIVED ON LIBERAL TERMS, SUBJECT TO CHECK AT SIGHT.

COLLECTIONS MADE THROUGHOUT THE COUNTRY.

Miscellaneous Stocks and Bonds bought and sold at the Stock Exchange on commission for cash.

Special attention given to the Exchange

SEVEN-THIRTY NOTES

till the series for the new

FIVE-TWENTY BONDS OF 1865,

ON THE MOST FAVORABLE TERMS.

9:3 3m

ROCKY MOUNTAIN NEWS.

DAILY AND WEEKLY.

The Pioneer and Leading Newspaper of the Rocky Mountain Country

ENTERS UPON ITS 9TH YEAR, APRIL, 1867.

The best medium for advertisers to reach all parts of Colorado, New Mexico, Utah, and Montana.

TERMS OF SUBSCRIPTION:

Weekly—One Year, $7 00; Six Months, $4; Three Months, $2 50.
Daily—One Year, $20 00; Six Months, $11; Three Months, $6 00.

7:3m Address, BYERS & DAILEY, Denver, Colorado.

THE

UNION PACIFIC

Railroad Company.

THEIR FIRST MORTGAGE BONDS AS AN INVESTMENT.

The rapid progress of the Union Pacific Railroad, now building west from Omaha, Nebraska, and forming, with its western connections, an unbroken line across the continent, attracts attention to the value of the First Mortgage Bonds which the Company now offer to the public. The first question asked by prudent investors is, "Are these bonds secure?" Next, "Are they a profitable investment?" To reply is brief:

1st. The early completion of the whole great line to the Pacific is as certain as any future business event can be. The Government grant of over twenty million acres of land and fifty million dollars in its own bonds practically guarantees it. One fourth of the work is already done, and the track continues to be laid at the rate of two miles a day.

2d. The Union Pacific Railroad bonds are issued upon what promises to be one of the most profitable lines of railroad in the country. For many years it must be the only line connecting the Atlantic and Pacific; and being without competition, it can maintain remunerative rates.

3d. 376 miles of the road are finished, and fully equipped with depots, locomotives, cars, &c., and two trains are daily running each way. The materials for the remaining 141 miles to the eastern base of the Rocky Mountains are on hand, and it is under contract to be done in September.

4th. The net earnings of the sections already finished are *several times greater* than the gold interest upon the First Mortgage Bonds upon such sections, and if not another mile of the road were built, the part already completed would not only pay interest and expenses, but be profitable to the Company.

5th. The Union Pacific Railroad bonds can be issued only as the road progresses, and therefore can never be in the market unless they represent a *bona fide* property.

6th. Their amount is strictly limited by law to a sum equal to what is granted by the U. S. Government, and for which it takes a *second* lien as its security. This amount upon the first 517 miles west from Omaha is only $16,000 per mile.

7th. The fact that the U. S. Government considers a second lien upon the road a good investment, and that some of the shrewdest railroad builders of the country have already paid in five million dollars upon the stock (which is to them a third lien), may well inspire confidence in a first lien.

8th. Although it is not claimed that there can be any better securities than Governments, there are parties who consider a first mortgage upon such a property as this the very best security in the world, and who sell their Governments to re-invest in these bonds—thus securing a greater interest.

9th. As the Union Pacific Railroad bonds are offered, for the present, at 90 cents on the dollar and accrued interest, they are the cheapest security in the market, being 15 per cent. less than U. S. Stocks.

10th. At the current rate of premium on gold, they pay

Over Nine Per Cent. Interest.

The daily subscriptions are already large, and they will continue to be received in New York by the

CONTINENTAL NATIONAL BANK, 7 Nassau street.
CLARK, DODGE & CO., Bankers, 51 Wall street.
JOHN J. CISCO & SON, Bankers, 33 Wall street.

and by BANKS and BANKERS generally throughout the United States, of whom maps and descriptive pamphlets may be obtained. They will also be sent by mail from the Company's Office, No. 20 Nassau street, New York, on application. Subscribers will select their own Agents in whom they have confidence, who alone will be responsible to them for the safe delivery of the bonds.

1.4.1m JOHN J. CISCO, TREASURER, New York

DUNCAN, SHERMAN & CO.,

BANKERS,

CORNER PINE AND NASSAU STREETS, N. Y.

ISSUE CIRCULAR NOTES AND LETTERS OF CREDIT FOR TRAVELLERS, AVAILABLE IN ALL THE PRINCIPAL CITIES OF THE WORLD.

MERCANTILE CREDITS

For Use in Europe, China, etc. Also Make

Transfers of Money to California & Oregon, by Telegraph.

6 4.ps INTEREST ALLOWED ON DEPOSITS.

EXTINGUISHER.

Always Ready for Instant Use.

Puts Out Fire Instantly.

PORTABLE, SELF-ACTING

FIRE ENGINE.

Price: No. 1, $45; No. 2, $50; No. 3, $55.

U. S. FIRE EXTINGUISHER CO.,

6-4-pl Send for Circular. No. 8 DEY STREET, New York.

NOW OPEN.

THE AMERICAN INSTITUTE.

GRAND EXHIBITION

Of National Industrial Products; Wonderful Inventions; Machinery in Motion; Statuary, Paintings, Photographs and Engravings; Beauties and Curiosities of Science and Art; Telegraph Cables in actual operation; Grand Display of Fruits, Flowers, Vegetables, &c.; Splendid array of Models, Implements, &c; Linen and Ribbon Looms, Carding Machines, and other interesting machinery hard at work; Philosophical Instruments; Geological and Mineralogical specimens, and a host of attractive novelties of all sorts, including a full-sized Pneumatic Railway (extending across the Exhibition), through which visitors can travel free of cost, and to which they will be raised by a patent Elevator and a remarkable piece of musical mechanism called the "Orchestrion." Music every evening, under the direction of Theodore Thomas. Admission 50 cents each; Children half-price. Gentlemen's Season Tickets, $3. Ladies' Season Tickets, $2. To be had day and night at the Exhibition Building, Fourteenth street, near Sixth avenue. The Exhibition closes October 26th.

PUBLICATIONS.

American Journal of Mining,

For 1867.

IMPROVED AND ENLARGED.

Of the numerous sources of wealth which this country possesses, none are more important, either in richness or extent, than her minerals. These have added largely to her prosperity, and afford a profitable means of investment for capital, and an extensive field for labor. The American Journal of Mining is acknowledged by the public and the press to be a faithful and accurate exponent of the important interests dependent on Mining, and to more fully meet the demands of circulating valuable and reliable information, it is now increased in size to sixteen large quarto pages, thus making it the largest paper devoted to mining on this continent.

It contains: Illustrated descriptions of the latest improvements in Mechanical appliances used in opening, working and draining mines; crushing and treating the ores.

Original Papers on Geology, Metallurgy, Assaying, Chemistry, and various Scientific subjects, contributed by able Scientists, in a popular style and with scientific method and exhaustiveness.

A Summary of Mining News, collected from all parts of the continent, and classified geographically and mineralogically.

Original Editorials, devoted to a review of the legislation affecting mining, to a denunciation of fraudulent speculation, to an advocacy of such measures as will advance the interests of miners or will increase public confidence in legitimate mining, and to a consideration of all other matters of value to those interested in mines.

Interesting Correspondence, giving the opinions of the public on topics of the day.

Miscellaneous Articles, culled from a selection of the leading scientific publications of Europe and America.

Reviews of New Publications on Science, Statistics, and other subjects immediately connected with the objects of the paper.

Reports of the Proceedings of the American Institute, of the German Polytechnic, and other Scientific bodies.

Statements of the formation and progress of Mining Companies, of their meetings and dividends, assessments, &c.

A comprehensive and correct Market Review of Stocks and Metals.

Reports on the Slate Trade, now rapidly increasing in importance.

Coal Trade Reports that will be found to surpass in extent and accuracy those given by any other paper, comprising accurate tables showing the shipments of Coal over the principal roads and canals during each week, and the increase or decrease as compared with the same period of the preceding year, the prices of coal, home, provincial and foreign, the rates of transportation, and the various tolls.

Reports on the Foreign Metal Markets.

Notices of Patent Claims interesting to Miners and Metallurgists, &c., and lists of Scientific Books.

The advertising columns afford a very full directory of the chief Manufacturers of Machines used in Mining, of Chemists, Assayers, Scientific Publishers, &c.

Each number of the American Journal of Mining is printed in the best possible manner, on an excellent quality of paper, contains 16 large solid pages, two volumes a year, each containing 416 Pages, forming a valuable book of reference to all interested in Mining, Milling, Geology, Chemistry, &c.

☞ Published every Saturday at 12 o'clock M.

TERMS.

SUBSCRIPTION:

$4 00 per annum, in advance. | Single copies Ten Cents.
$2 25 for six months. | ☞ Specimen Copies sent free.

RATES OF ADVERTISING:

5 cents per line of 13 words for each insertion. ☞ A Discount allowed to permanent advertisers.

☞ Terms invariably in advance.

WESTERN & COMPANY, EDITORS AND PROPRIETORS
No. 37 Park Row, and 145 Nassau St., New York City.

IMPORTANT AND VALUABLE WORKS ON

Mining, Milling, Oil-boring, Mineralogy, Metallurgy, Geology, Chemistry, Engineering, etc.

ARIZONA and Sonora. By Mowry, 12mo..... $1 50

APPLETON'S Cyclopedia of Drawing. A Text Book for the Mechanic, Architect, Engineer and Surveyor. Royal, 8vo..... 10 00

AGASSIZ.—Geological Sketches. Portrait and illustrations. 16mo, cloth. 2 25

ANSTED'S Gold Seeker's Manual. 1 vol. 12mo, cloth..... 1 75
——Elementary Course of Geology, Mineralogy, and Physical Geography. By David T. Ansted. 1 vol. 12mo, cloth.. ... . 6 00

ANTISELL.—The Manufacture of Photogenic or Hydro-Carbon Oils, from Coal and other Bituminous substances, capable of supplying Burning Fluids. By Thomas Antisell, M. D. 1 vol 8vo..... 3 00

BOOTH AND MORFIT.—Encyclopedia of Chemistry, Theoretical and Practical. By James C. Booth and Campbell Morfit. 7th Edition. 5 00

BOWEN (Eli.)—Coal and Coal Oil; or, The Geology of the Earth. Being a Popular Description of Minerals or Mineral Combustibles. 12mo..... 2 00

BRISTOW.—A Glossary of Mineralogy. By H. W. Bristow, F.G.S. 1 vol. 12mo, cloth..... 6 00

BURGOYNE (Sir J., Lieut.-General.)—Blasting and Quarrying of Stone, and Blowing up of Bridges..... 75

BUFFUM.—Six Months in the Gold Mines. 1 vol. 12mo..... 1 00

BUCKLAND (Rev. Wm.)—Geology and Mineralogy. 2 vols. 8vo, hf. cf. 20 00
2 cloth. 8 vo, cloth..... 10 00

BLAKE (Wm. P.)—Report of a Geological Reconnoissance in California. 1 vol. 4to, Illust..... 10 00

BYRNE.—The Practical Metal Worker's Assistant; comprising Metallurgic Chemistry, and the Arts of Working all Metals and Alloys. With 592 engravings. 652 pages, 8vo..... 7 00
——The Handbook for the Artisan, Mechanic, and Engineer. By Oliver Byrne. Illustrated by 11 large plates and 185 wood engravings. 8vo..... 5 00
——The Practical Model Calculator for the Engineer, Mechanic, Manufacturer of Engine Work, Naval Architect, Miner and Millwright. By Oliver Byrne. 1 vol. 8vo, nearly 600 pages..... 4 50

BLOWPIPE.—A System of Instruction in the Practical Use of the Blowpipe; being a Graduated Course of Analysis for the Use of Students and all those engaged in the Examination of Metallic Combinations. Illustrated. 12mo..... 2 50

CRESY (Edward).—An Encyclopedia of Civil Engineering. 1 vol. 8vo. Illustrated..... 21 00

CLEVELAND (P.)—An Elementary Treatise on Mineralogy and Geology. 8vo..... 4 00

DANA'S Manual of Mineralogy. 1 vol. 8vo..... 2 25
Text Book of Geology. 1 vol. 12mo..... 2 00

ERNI (Dr. Henry).—Coal Oil and Petroleum: their Origin, History, Geology and Chemistry. 12mo..... 2 50

ELDERHORST (Wm.)—Blowpipe Analysis and Determinative Mineralogy. Fourth edition. Revised by Prof. C. F. Chandler. 1867.. 2 50

FOSTER AND WHITNEY.—Report of the Geology of the Lake Superior Land District. The Iron and Copper Regions. 2 vols. 8vo, and maps (scarce)..... 10 00

FAIRBAIRN.—Iron: its History, Properties, and Processes of Manufacture. By Wm. Fairbairn, C. E., LL. D. 1 vol. 8vo. New Edition. 3 75

GREENWELL (G. C.)—A Practical Treatise on Mine Engineering. Handsomely illustrated. 1 vol. 4to, hf. mor..... 30 00

GOODYEAR'S Translation. A Treatise on the Assaying of Copper, Lead, Silver, Gold and Mercury, from the German of Th. Bodeman and Bruno Kerl. 1 vol. 12mo, cloth..... 2 50

GESNER (A. A)—Practical Treatise on Coal, Petroleum, and other Distilled Oils. 8vo. Fully illustrated..... 2 25

GILPIN'S Central Gold Regions. Illustrated by maps. 1 vol. 8vo. 3 50

HUMBLE.—Dictionary of Geology and Mineralogy. Third Edition. 1 vol. 8vo, cloth..... 5 87

HOLLISTER.—The Mines of Colorado..... 2 00

HOSKOLD'S Practical Treatise on Mining Land and Railway Surveying, Engineering, &c. 1 vol. 8vo, cloth..... 15 00

HALL (E. H.)—The Travellers', Miners' and Emigrants' Guide and Hand-Book to the Western States and Territories; containing Mining Laws of the respective States. 1 vol 12mo, cloth..... 1 00

JACOBS.—Precious Metals. 2 vols. 12mo..... 12 00

KURR'S Mineral Kingdom. 1 vol. 4to, colored plates..... 15 75

KUSTEL.—Nevada and California Processes of Silver and Gold Extraction, for general use, and especially for the Mining Public of California and Nevada; also, a description of the General Metallurgy of Silver Ores. By Guido Kustel, Mining Engineer. Illustrated by accurate engravings. 1 vol. 8vo, cloth..... 8 50

LAMBORN—Rudimental Treatise on the Metallurgy of Copper. 1 vol. 12mo, limp cloth. Illustrated..... 1 00
—— Rudimentary Treatise on the Metallurgy of Silver and Lead. 1 vol. 12mo, limp cloth. Illustrated..... 1 00

LIEBER.—Assayers' Guide; or, Practical Directions to Assayers, Miners, and Smelters. By Oscar M. Lieber. 12mo, cloth..... 1 25

LOWIG.—Principles of Organic and Physiological Chemistry. By Dr. Carl Lowig. Translated by Daniel Breed, M. D. 8vo, sheep..... 3 50

LYELL (Chas.)—Principles of Geology; or the Modern Changes of the Earth and its Inhabitants. Illustrated, and maps. 8vo..... 5 00
—— Elements of Geology. 8vo..... 5 00

McCORMICK.—Arizona; its Resources and Prospects. Pamphlet, 32 pp., with map. By R. C. McCormick (Secretary of the Territory).. 00 25

MITCHELL'S Manual of Practical Assaying. 1 vol. 8vo, cloth..... 12 00

MAKINS.—A Manual of Metallurgy, more particularly of the Precious Metals, including the Methods of Assaying them. By. G. H. Makins. 1 vol. 12mo, cloth. Illustrated by upwards of 50 engravings..... 3 50

MAP of the "Reese River" Mining District..... 3 00

MULLAN'S Miner's and Traveller's Guide to Oregon, Washington, Idaho, Montana, Wyoming, and Colorado, via the Missouri and Columbia Rivers. 1 vol. 12mo..... 2 00

ORE.—The Ventilation of Mines. By Ralph Moore. 1 vol. 8vo, cloth. 2 50

OVERMAN (Fred.)—A Treatise on Metallurgy; comprising Mining, and General and Particular Metallurgical Operations. 1 vol. 8vo, cloth..... 8 00

PERCY (John).—Metallurgy; the Art of Extracting Metals from their Ores, and adapting them to various Purposes of Manufacture. Vol. 2. Iron and Steel. 1 vol. 8vo., cloth..... 21 00

PHILLIPS AND DARLINGTON.—Records of Mining and Metallurgy; or, Facts and Memoranda for the use of Mine Agents and Smelters. By J. A. Phillips and John Darlington. 1 vol. 12mo, cloth..... 2 50

PIGGOT.—The Chemistry and Metallurgy of Copper. By A. Snowden Piggot, M. D. 1 vol. 12mo, cloth..... 1 50

PLATTNER AND MUSPRATT.—The Use of the Blowpipe in the Qualitative and Quantitative Examination of Minerals, Ores, Furnace Products, and other Metallic Combinations. 1 vol. 8vo, cloth..... 5 25

PHILLIPS G. J.—System of Mining Coal and Metalliferous Veins fully Explained, with a Compendium of General Principles on that Science. 1 vol. 12mo..... 1 50

POLE (Wm.)—A Treatise on the Cornish Pumping Engine. In Two Parts. Part I.—Historical Notice of the Application of the Steam Engine to the Purpose of Draining the Mines of Cornwall, and of its Progressive Improvement in that District. Part II.—Description of the Cornish Pumping Engine, and of its Various Peculiarities, as contrasted with the Ordinary Boulton and Watt Single-Acting Engine. Illustrated by nine plates. 1 vol. 4to, cloth..... 21 00

PHILLIPS.—Guide to Geology. By Prof. J. Phillips. 5th edition. 1 vol. cloth..... 2 00
—— Mining and Metallurgy of Gold and Silver. By J. Arthur Phillips, Mining Engineer. 1 vol. demy, 8vo. Illustrated. In press.
—— Gold Mining. 1 vol. 12mo..... 6 25
—— Elementary Introduction to Mineralogy. 1 vol., thick 12mo.
—— Manual of Metallurgy. 2d edition. 1 vol. 12 mo..... 3 00

PAGE.—Hand-book of Geological Terms and Geology. By David Page. 1 vol. thick 12 mo, cloth..... 3 75
—— Advanced Text-book of Geology. 1 vol. 12mo, cloth..... 2 50
—— Geology for General Readers. A Series of Popular Sketches in Geology and Palæontology. 1 vol. 12mo., 1866..... 5 50

RICKARD.—The Miner's Manual. 1 vol. 8vo, cloth..... 3 00

SWEET (S. H.)—Special Report on Coal; showing its Distribution, Classification and Cost, delivered over Different Routes to various Points in the State of New York, and the Principal Cities on the Atlantic Coast. By S. H. Sweet, late Deputy Engineer and Surveyor of the State of New York. Transmitted to the Legislature, March, 1865. 1 vol. 8vo, cloth..... 3 00

SCOFFERN'S Useful Metals and their Alloys. 1 vol., cloth..... 3 00

STUART (G.)—Montana as it is; being a general description of its Resources, both Mineral and Agricultural. 1 vol. 8vo. paper..... 2 00

SMYTH.—A Treatise on Coal and Coal Mining. By Warrington W. Smyth, M. A., F. R. S. 1 vol. 12mo, cloth. London, 1867..... 4 00

SOPWITH (T.)—A Treatise on Isometrical Drawing as applicable to Geological and Mining Plans. vol. 8vo, cloth (very scarce)..... 15 00

TAYLOR.—Statistics of Coal; including Mineral Bituminous Substances employed in the Arts and Manufactures. Second Edition. By R. C. Taylor. 1 vol. 8vo, cloth..... 1 25

TATE (A. Norman.)—Petroleum and its Products..... 1 25

TOMLINSON (Charles.)—Encyclopedia of Useful Arts, Mechanical and Chemical; Manufactures, Mining and Engineering. 3 vols. 8vo, cloth, gilt..... 36 00

TRUEAN (W.)—The Iron Manufacture of Great Britain, Theoretically and Practically considered; including Descriptive Details of the Ores, Fuels, and Fluxes employed, the Preliminary Operation of Calcination, the Blast, Refining, and Puddling Furnaces, Engines, Machinery, etc. Third edition, revised. Illustrated. 1 vol. 4to..... 20 00

WHITNEY.—A Geological Survey of California. Report of Field Work, from 1860 to 1864. By J. D. Whitney. 1 vol., quarto..... 6 00

WHITNEY (J. D.)—Silver Mining Regions of Colorado. Paper..... 00 25

WRIGHT.—The Oil Regions of Pennsylvania; showing where Petroleum is found, how it is obtained, and at what cost. By Wm. Wright. 1 vol. 12mo..... 1 50

WALLACE.—Laws which Regulate the Depositions of Lead Ore in Veins. 1 vol. 8vo..... 12 50

WELLS (D. A.) Annual of Scientific Discovery; or, Year Book of facts in Science and Art. 1850 to 1865. Per vol..... 1 75

WHEELER and RANDALL.—Quartz Operators' Hand-Book. 1 vol. 18mo, cloth..... 1 50

Any of the above Works may be had by addressing
WESTERN & COMPANY, 37 PARK ROW, N. Y.,
Enclosing price, and expense of forwarding by Express or Post.

U. S. POSTAGE.

Letter (Territorial) Rate, three cents per half ounce.
Book (State) Rate, four cents for every four ounces or fraction thereof, prepaid.

ARION PIANO-FORTE.—Patented.

Pre-eminently the best Piano ever constructed, unrivalled for tone, durability and elegance of finish. The Brooklyn Daily Times says: "It has in higher degree than any Piano that we have met with, the singing quality or character that musicians so much admire and seek for in a Piano; the bass notes reminding you of the deep-toned notes of a large organ. The middle octaves are more elastic and clear than in most other Pianos, while the upper or treble notes possess that pure, distinct, bell-like clearness that is so necessary to the correct rendering of difficult pieces of music, and that also lends such a charm to melody." Professor J. M. Abbott, organist of the Church of Our Saviour, in Brooklyn, says: "For elasticity of touch, for the singing quality so much sought for by artists, and for richness and purity of tone, it is unexcelled by any Piano I have ever used." Professor John W. Henry Canoll, editor of the American Educational Monthly, says: "* * * * Listen, however, to one of another class, for example, one of the Arion Pianos, made by Manner & Co.; bow your head as the bass sends forth its riches; clear and unblurred; observe the singing, swelling melody that in its middle octaves so wondrously represents vocal expression, and which predominates above even the silvery brilliancy of the upper treble; then reflect that this is a scientifically constructed and durable instrument." * * * *

Is for sale at the Manufactory and Warerooms, 187 and 189 Bowery, second door above Delancey street. MANNER & CO.

N. B.—We have a number of Second Hand Pianos to sell or rent. 12-v:22ip

ECONOMY AND CONVENIENCE COMBINED.—The CARRIER INSECT SHIELD MANUFACTURING COMPANY, 18 Park Place, New York, manufacture Portable Insect Shields, Mosquito Bars, &c., for use on Beds, Cribs, Soldiers' Bunks, Steamboat Berths, Tables, &c., of the following sizes: 40x25, 48x36, 72x54 inches. As a Mosquito Bar and for protection against Flies, they are superior to all others. An invaluable appurtenance to the sick room and the nursery, being adapted to Beds, Cribs or Cradles, without fixtures or support, and removable without trouble or inconvenience. As a cover for Meats, Fruits, Vegetables, &c., on tables, it is admirably adapted, and should be found in Every House, Hotel and Restaurant where Flies are a source of annoyance.

Nets for the Southern, West Indian and South American trade are made of a material of close texture, such as is ordinarily used as a protection against Flies and other small insects. The attention of Tourists and Travellers generally is invited to them, as, aside from their comparatively perfect protection from insects of all kinds, they can be folded up and packed, without danger or injury, in an ordinary carpet bag, and are ready for use at all times and in all places, without adjustment or trouble.

Orders may be addressed as above to W. T. WHITMORE, Agent.
☞ Agents wanted for the South and West. m4:p:5

IMPORTANT TO

BANKERS AND MERCHANTS.

This Company offer for the consideration of Bankers, Merchants and those desiring the *best* burglar-proof security, the following certificates:

Office of the Novelty Iron Works,
New York, Dec. 18, 1866.

Messrs. Lewis Lillie & Son:

Gentlemen: We have subjected the sample of double-chilled iron you furnished us to the most severe tests (as regards drilling through it) we could bring to bear upon it, and without success.

It is our opinion that it can only be penetrated by the use of a large number of drills, and the expenditure of much power with days of time, and we think it impossible for a burglar with his time and power to penetrate it at all.

Yours truly,
Isaac V. Holmes, Supt.
Lyman G. Hall, Foreman.

Hinkley and Williams Works,
Boston, Mass, Jan. 22, 1867.

We have made an attempt to drill a sample of double-chilled iron furnished us by Messrs. Lillie & Son, and failed to penetrate it more than five-eighths of an inch, after hours of labor, and feel that we can endorse the Novelty Iron Works' certificate in all particulars. Jarvis Williams, Treasurer.

Philadelphia, Pa., Feb. 25, 1867.

Messrs. Lewis Lillie & Son:

Gentlemen: We have tried a sample of double chilled iron similar to that sent to the Novelty Iron Works, New York, and our experience with it is about the same, viz: that it can only be penetrated by a long continued operation of the most skillful mechanics and the best tools.

Very truly,
W. H. Bechtel.
W. H. Strahan.
Foremen in Messrs. Merrick & Son's Southworth Foundry, Philadelphia, Pa.

Office Union Foundry Works,
Chicago, Ill., March 13, 1867.

Messrs. Murray & Winne, Agents Lillie Safe and Iron Company.

Gentlemen: We subjected the sample of new combination of metals for safes sent us by you to as thorough tests of the drill as we could, and failed to penetrate the metal at all. We think it would be impossible for burglars to enter the safes made of this metal by means of the drill, during the longest time in ordinary business they could have access to them—in fact, that the metal is proof against the drill.

Truly yours,
N. S. Bouton & Co.

Office of the Northwestern Manufacturing Co.,
Chicago, March 11, 1867.

Messrs. Murray & Winne, Agents Lillie Safe and Iron company:

Gentlemen: We subjected the sample you furnished us of a new combination of metals (to be used in the manufacture of Lillie's Safes) to the severest tests of our Power Drill, and with the best tempered drills our skil and experience could produce.

After operating upon it with different drills several hours without penetrating it more than half an inch, and at that point unable to make further progress, we became satisfied that if not utterly impenetrable, it would at least require days of time, a large number of drills and machine power to penetrate through it, and that it was entirely out of the power of even the most skillful burglar to penetrate a safe made of this material.

R. T. Crane, President.

LILLIE'S

DOUBLE CHILLED AND WROUGHT IRON

FIRE AND BURGLAR PROOF

SAFES.

A full assortment of these unequalled Burglar-Proof Safes constantly on hand at our Warerooms. Also Safes of every description, designed for both Fire and Burglar-Proof Security. The public are invited to call and examine for themselves as to the merits of our Safes.

LILLIE'S

Safe and Iron Company,

LEWIS LILLIE, President.

10:3:6m 198 Broadway, New York.

GREGORY YALE,

ATTORNEY & COUNSELLOR AT LAW,

18 Merchants' Exchange,

San Francisco, Cal.

Has been practicing Law in California since 1849. He will give special attention to applications for United States Patents for Mining Lodes, under the act of Congress of the 26th of July, 1866, before the local officers of the respective Land Districts in the State, and is prepared to give opinions upon all legal questions relating to the Mining Laws of the State, and upon the Mining Ordinances of Mexico and Spain.

He refers to the Hon. Stephen J. Field, Associate Justice of the Supreme Court of the United States.

Jan. 1, 1867 18:12:ip

AN INVENTION OF RARE MERIT!

BROWN'S PATENT

METAL TOP LAMP CHIMNEY,

THAT WILL NOT BREAK BY HEAT,

Burns up all gas and smoke, never breaks by putting on shade; short, and not top-heavy; is easily cleaned by removing top; in fact, the most perfect chimney known, and is fast superseding all others where it has been introduced.

No dealer can afford to be without it.

NEW LAMP CHIMNEY CO,
10:4:3t 245 Pearl Street, New York.

JOB PRINTING.

Plans, Specifications, Bill-Heads,
Receipts, Letter-Heads, Show-Bills,
Cards, Circulars, etc,

executed at the office of the American Journal of Mining.

WESTERN & COMPANY,
P. O. Box 5,969 No. 37 Park Row, and 145 Nassau St., New York City.

SUPPLIES.

THE

BISHOP GUTTA PERCHA COMPANY.

The Original and Only Manufacturers in the United States of

PURE GUTTA PERCHA GOODS,

GUTTA PERCHA INSULATED SUBMARINE TELEGRAPH CABLES,

Insulated Wire for Telegraph, Mining and Blasting Use.

WATER, BEER, AND SODA PIPE; CHEMICAL VESSELS.

Factory, Nos. 208, 210 and 212 East 25th Street

Office and Salesroom, 113 Liberty Street, N. Y.

West of Broadway

WALTER O. LEWIS, Esq., Electrician to the Co. SAMUEL C. BISHOP, General Agent

4-4-qp-q

STEPHEN J. GEOGHEGAN & CO.

(Successors to Cameron & Geoghegan.)

199 & 201 Centre Street, N.Y.,

Adjoining Earle's Hotel.

MANUFACTURERS AND DEALERS IN

Wrought and Cast Iron Steam Pipes, Valves, Cocks, Fittings, &c.

FOR STEAM, WATER, AND GAS.

Also,

High and Low Pressure Steam Heating Apparatus applied to

FACTORIES, PUBLIC BUILDINGS, STORES AND DWELLINGS.

Manufacturers and Sole Agents for

STORER'S PATENT LUBRICATORS,

for supplying lubricating matter in bulk to the cylinders of Marine and Stationery Steam Engines, Steam Pumps, Heaters, Steam Traps, Pipe Tongs, Pipes, Vices, Stocks and Dyes, &c., &c.

We make Steam and Gas Fitter's tools a specialty.

Coils for Breweries, Distilleries, Soap Factories, &c., &c

STEAM PUMPS.

Send for Illustrated Circular. 7 4 xm

CIRCULAR SAWS

WITH

EMERSON'S PATENT MOVABLE TEETH.

These Saws are now in use in every State in the Union. More than eight hundred, of sizes from 8 inches to 72 inches in diameter, are in operation Saws of this number of all kinds and cutting in some cases 50,000 feet of green lumber per day.

ALSO,

Emerson's Patent Adjustable Swage,

for Spreading, Sharpening and Shaping the teeth. Price $5.

Manufactured by AMERICAN SAW COMPANY,

Office No. 2 Jacob Street, New York.

Send for Descriptive Pamphlet and Price List. 1v4-qp

NITRO-GLYCERIN.

UNITED STATES BLASTING OIL COMPANY.

We are now prepared to fill all orders for Nitro-Glycerin, and respectfully invite the attention of Contractors, Miners, and Quarrymen to the immense economy in the use of the same.

12:2:qp Address Orders to JAMES DEVEAU, Sec'y., 32 Pine st., N. Y.

THE ANTI-INCRUSTATOR.—Highly important to those using Steam Boilers.—This simple instrument renders a Boiler self-cleaning, thereby economizing fuel. It is fixed in the steam space, is durable and easily attached. By its action, scale of any thickness is gradually and surely detached from the sheets, flues and tubes, which are afterwards kept perfectly clean, without any injury to the iron or metal of which they are composed. When applied to a new Boiler it entirely prevents incrustation. Thousands are in use throughout the country. NEW YORK ANTI-INCRUSTATION COMPANY, 73 WILLIAM STREET, New York City. P. O. Box 249.

B. H. Van Aaken, Pres., J. R. Estill, Sec., David Barney, Sup't. 4:3:qp

---

IRON AND STEEL WIRE ROPE.

MANUFACTURED BY

JOHN A. ROEBLING,

TRENTON, N. J.

FOR

INCLINED PLANES, MINING,
STANDING SHIP RIGGING,
SUSPENSION BRIDGES, FERRIES,
STAYS AND GUYS ON DERRICKS,
CRANES & SHEARS, ELEVATORS,
TILLERS, &c.

A large stock of Wire Rope constantly on hand. Orders filled with dispatch.

☞ For strength, size and cost see circular, which will be sent on application. 8:3:xm

---

GUNPOWDER SUPERSEDED.

Explosions and accidents from this time counted among the things that were. Quarrymen and miners, hunters and soldiers use only

NEUMEYER'S PATENT SAFETY POWDER.

Now in universal use for blasting and mining purposes in England, France and Germany. You can handle and ship this powder with no more danger than you handle oil, sulphur, or charcoal. To explode it has to be confined and ignited by means of a fuse. One feature that specially recommends its use in mines and confined places is that very little smoke results from its combustion, and this smoke is very light, and not at all injurious to the lungs.

NEUMEYER & NIESE, ST. LOUIS, MO.,

Are the Patentees and Sole manufacturers for the United States. One general agent wanted for each State. For further particulars address

NEUMEYER & NIESE,

4.4.qp 17 No. 9 South Third street, St. Louis.

PORTABLE STEAM ENGINES,

COMBINING THE MAXIMUM OF

EFFICIENCY, DURABILITY AND ECONOMY,

with the minimum of weight and price. They are widely and favorably known, more than SIX HUNDRED being in use. All warranted satisfactory or no sale. Descriptive circulars sent on application. Address

7:3:xm J. C. HOADLEY & Co., Lawrence, Mass.

WATER-PROOF SAFETY FUSE.

Warranted Sure Fire if not Cut in Tamping.

MANUFACTURED BY

UREN, DUNSTONE & BLIGHT,

EAGLE RIVER, KEEWENAW CO., (L. S.) MICHIGAN.

MINERS TRY IT! All we ask is A FAIR FIELD AND NO FAVOR. 10 2-qp

---

NEW YORK BELTING AND PACKING COMPANY,

MANUFACTURERS OF

VULCANIZED RUBBER FABRICS,

ADAPTED TO MECHANICAL PURPOSES.

Patent Smooth Belting, (Patented Nov. 22, 1859,) vulcanized between layers of a patent metallic alloy, by which the stretch is entirely taken out, the surface made perfectly smooth, and the substance thoroughly and evenly vulcanized. This is the only process that will make reliable Rubber Belting.

Hose never needs oiling, and warranted to stand any required pressure.

Steam Packing in every variety, and warranted to stand 300° of heat.

Solid Emery Vulcanite.—Wheels made of this are solid, and resemble stone or iron; will wear out hundreds of the ordinary wheels.

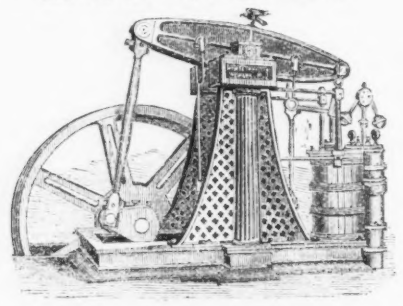
Directions, Prices, etc., can be obtained by mail or otherwise.

2 2 qp JOHN H. CHEEVER, Treasurer.

Warehouse, 37 & 38 Park Row, N. Y.

HEWES & PHILIPS'

IRON WORKS.



COR. ORANGE AND OGDEN STS., NEWARK, N. J.

Manufacturers of the most improved

HIGH AND LOW PRESSURE, STATIONARY, PORTABLE, AND MARINE STEAM ENGINES AND BOILERS, MACHINISTS' TOOLS, SUGAR ESTATE MACHINERY.

Iron and Brass Castings of all descriptions, and all kinds of General Machinery. Have facilities unsurpassed for executing orders promptly.

☞ Orders for repairing in any of the branches executed with dispatch.

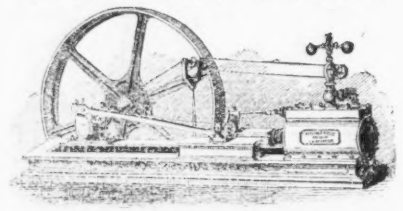
J. I. HEWES, J. M. PHILLIPS, C. R. WOOLSON, J. A. THOMSON.

1. V4 6m

TODD & RAFFERTY,

GENERAL

Machinery Merchants, Engineers and Machinists.



Manufacturers of Stationary and Portable Steam Engines and Boilers; also, Flax, Hemp, Tow, Oakum, and

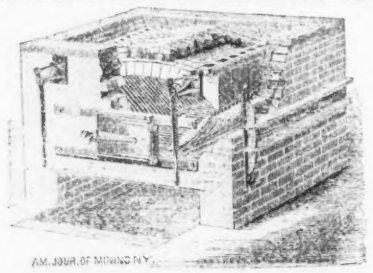
ROPE MACHINERY, MILL GEARING, SHAFTING,

Lathes, Planers, Drills, Chucks, &c., Iron and Brass Castings. Judson's & Snow's Patent Governors constantly on hand.

OFFICE AND WAREROOMS, NO. 4 DEY ST, N. Y.

Office and Works, Paterson, N. J.

JOSEPH C. TODD. 5-3:xm PHILIP RAFFERTY.



THE SMOKELESS FURNACE,

For burning Bituminous Coal without smoke. Illustrated in the AMERICAN JOURNAL OF MINING, issue of May 25th, 1867.

BRAUN'S BASKET GRATE FURNACE,

For burning Pea and Dust Coal, and other fine material. Illustrated in the *Scientific American*, issue of May 25th, 1867.

THE REFLECTING ARCH WARM AIR FURNACE,

For burning Pea and Nut Coal. Illustrated in the *American Artisan*, issue of June 12th, 1867.

The Patents for the above Furnaces are the property of "The Fuel Saving Furnace Co.," of No. 205 Broadway, N. Y., who are ready to negotiate with responsible parties on favorable terms for the introduction of said furnaces in the various States. Address WM. ENNIS, President, or J. W. COLE, Secretary,

11:3 6m **No. 205 Broadway, N. Y.**

WEST'S IMPROVED

AUTOMATIC TAPERING LATHE,

Warranted to turn unequal diameters in wood at the rate of 1,000 to 2,000 RUNNING FEET PER HOUR, according to finish desired.

DURKEE'S AUTOMATIC SAWING MACHINE,

Warranted to saw small stuff from the log at the rate of 1,000 to 2,000 running feet per hour. ☞ Send for illustrated circulars.

25:2:a FINLEY & CO., Geneseo, Livingston county, N. Y.

E. S. EARS' WOOD ENGRAVING ESTABLISHMENT.

ENGRAVING, DESIGNING AND PHOTOGRAPHING on Wood, in all its branches, viz: Portraits, Fine Book Work, Machinery, Maps, Buildings, Illustrated Catalogues, Views, &c. N. B special attention given to Color Work of all descriptions. 48 BEEKMAN STREET, New York. 4:6qp-q

---

BULLARD & PARSONS,

HARTFORD, CONN.,

Manufacturers of

IMPROVED UPRIGHT DRILLS,

with friction feed. This tool can be used with equal facility for light drilling or heavy boring—is particularly adapted to railroad, locomotive, steam engine, and general machine shops. We also make first class Shafting, and Mill Work, from a great variety of new and improved patterns. We furnish with our shafting, patent self-oiling boxes and friction couplings. Special machinery to order. Send for cut and price list. July 6qp-q

---

CHRISTOFFEL & BOOTH'S

PATENT ELLIPTIC SCRAPER

AND

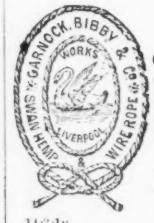
TUBE CLEANER,

FOR BOILER AND OTHER TUBES.

(Patented in the United States and Europe.)

This novel and ingenious invention is the cheapest, best, most durable, easiest to adjust, cleanest to use, and the most perfect Instrument ever yet offered to the public. Being constructed on simple and mechanical principles, it is not liable to get out of order, and will continue to perform its office until the materials are worn out. It can readily be adjusted, even by any inexperienced person, will scrape off the scales and cleanse the Tubes just as smooth and clean as they were when new, without in the least affecting their inner surface, as the ELLIPTIC SPRING SCRAPER has a smooth, square edge, and springs in or out to fit the Tubes. Further information may be had of Messrs. CHRISTOFFEL & BOOTH, Manufacturers, 201 Centre Street, New York. 8.4 ps.o

AGENTS WANTED, a liberal commission will be allowed.



WIRE ROPE.

The Subscribers, agents for

GARNOCK, BIBBY & CO.'S

Celebrated Steel and Charcoal Wire Rope, for Mines, Inclined Planes, Bridges, Derricks, and Hoisting Purposes. Also Galvanized Charcoal and B. B. Rope for Ships' Standing Rigging, Stays, Guys, &c.

A large stock constantly on hand. Orders filled with dispatch. For further particulars as to price, test weight and working strain, apply for Mining Circular to

14:3:y JOHN W. MASON & CO., 43 Broadway, N. Y.

SNOW'S PATENT

SAFETY GOVERNOR AND VALVE COMBINED.

GLEN & HALL, ROCHESTER, N. Y.,

Sole Manufacturers.

(See engraving and description in AMERICAN JOURNAL OF MINING, September 29, 1867.)

This Governor has been in general use upon Engines driving all kinds of machinery during the last seven years, and is admitted, by all who have seen it operate to be unsurpassed as an engine regulator. Yielding, as it does to the slightest change in the speed of the piston, it produces an easy and elastic movement of the engine, and has been used in many cases requiring great accuracy, where other leading governors have failed.

In addition to its value as a regulator, it has the safety feature, whereby IT CANNOT FAIL TO SHUT OFF THE STEAM AND STOP THE ENGINE THE MOMENT IT IS DEPRIVED OF ITS ROTARY MOTION BY PARTING OR SLIPPING OFF OF THE BELT, OR OTHER ACCIDENT. It thus prevents the injury to engine and destruction of machinery attached which often follows accidents of this character. They are very ornamental in their model, simple in construction and action, thoroughly finished and durable. We make them of all sizes, adapted to engines of the largest and smallest capacities.

☞ So great is our confidence in this Governor, that we offer to Engine Builders and Machinists, unacquainted with its merits, to furnish them with one or more at our lowest trade price, and if, after thorough trial, they do not prove entirely satisfactory, they may be returned, and the money paid, with the freight, will be refunded.

Descriptive circulars and price lists sent free to all applicants.

GLEN & HALL, Rochester, N. Y.

13:4:ps Todd & Rafferty, Agents, No. 4 Dey street, New York.

MACHINISTS.

FRANK B. POLLEY & CO.,

ENGINEERS AND MACHINISTS,

277 & 279 First street, Brooklyn, New York.

Manufacturer of

HIGH AND LOW PRESSURE STEAM ENGINES,

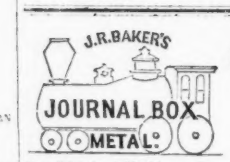
PORTABLE AND HOISTING ENGINES,

Also,

MACHINERY OF ALL KINDS.

FRANK B. POLLEY. EDWD. W. CLARKSON.

Send for Circular. 13:3:qp-q



NEW JERSEY

NATIONAL METAL COMPANY.

Sole Manufacturers of

J. R. BAKER'S

JOURNAL BOX

AND LINING METALS.

For all kinds of Machinery, Journal Boxes where the use of Anti-Friction Metal for Bearings is desired.

Important to Railroad Companies, Steamboat and Steamship Proprietors, Engineers, Mill-Men, Machinists and all persons putting up new works.

The merits of this National Metal has achieved for it such success that during the past year the proprietors have enlarged their facilities for its manufacture. They are now able to supply all demands, and would commend it to the attention of the public with confidence, that one trial will convince the most skeptical of its worth.

☞ Prices set at a low figure.

No. 1, Journal Box, cast in shape, 30, 35 and 40 cts. per pound

Lining Metals—No. 1, 30 cents per pound. No. 2, 25 cts.; No. 3, 20 cts.

NEW JERSEY NATIONAL METAL WORKS,

J. R. BAKER & CO.,

179 Pavonia Avenue, Jersey City, N. J.

J. TAYLOR, Superintendent.

CHARLES B. CROSSMANN,

9:3:xmo 40 Cortlandt street, N. Y., SUPPLY HOUSE

ENLARGEMENT OF THE

AMERICAN JOURNAL OF MINING.

Volume IV., Commencing July 6.

In consequence of the remarkable success that has attended this Journal, the Proprietors feel warranted in increasing its size to

SIXTEEN LARGE PAGES,

thus making it the LARGEST and most COMPREHENSIVE Mining Journal on this continent, representing the Gold, Silver, Copper, Iron, Lead, Coal, Slate, Oil, and in fact all the Mineral interests of America, containing beautiful engravings, illustrating the latest improvements in milling, mining and metallurgical machinery.

The Journal has won the encomiums of the press of the entire country and Europe, and numbers among its contributors more eminent scientific men than any other weekly publication in America.

The reports of the markets in stocks, metals, minerals and ores, carefully corrected weekly, are an important feature of the Journal.

Subscription $4 per year; for six months, $2 25, in advance; single copies, 10 cents. Specimen copies sent free. Address

WESTERN & COMPANY,

Publishers, 37 Park Row, N. Y.